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WESTERN AMERICANA

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THE ELEVEN EAGLETS
OF THE WEST

THE ELEVEN EAGLETS OF THE WEST

BY

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REGION OF AMERICA," "THE GREAT FORESTS AND DESERTS
OF NORTH AMERICA," ETC.

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INTRODUCTION

In spite of my declared intention of laying down the pen so far as the subject of America is concerned, I have been persuaded to produce a fourth book on that enchanting land. Many of my readers have addressed quite urgent letters to me, begging for another book, and even several of my critics have hoped that I would reconsider my intention of closing the series of narratives which, to my gratified surprise, have attracted so much attention from those who love wild nature so well that they have lost sight of my many failings in the beauty and grandeur of the subjects I have attempted to pen-paint.

Among those who have requested me to take up the pen again is an American friend, who has recently visited this country—a friend in whose company I have travelled many hundreds of miles in his native land. This gentleman has a peculiar knowledge of the Western States of America, and to his suggestion and help the plan of this work is largely indebted.

It will be seen at once, by readers of the previous books, that the plan of this work is different from that of my first essays. The narrative is given, approximately at any rate, as a consecutive journey, but it is really made up of two very long, and several short journeys. Some of these journeys were described in my first work, but there is little or no repetition here. I have dropped out the main incidents previously given, and substituted others of almost, perhaps quite, as great importance, or filled in the narrative with details, which I have reason to feel assured will be of interest to the reader.

Broadly, the country is described State by State; this plan, I was assured, would increase the value of the book. I hope that will prove to be the case. At any rate, it cannot detract from the general interest of the work. It is from the study of the best maps procurable, assisted by the peculiar knowledge of the before-mentioned friend, that I have been able to trace roughly the various routes of these journeys. This was an advantage my first efforts lacked. The lines indicated may be relied on as generally correct, though, probably, there are still some errors. But the fact must not be lost sight of, that the actual travelling was performed without the assistance obtainable from good maps; in fact, I had no reliable maps on any of these journeys, and vast tracts of the country passed through was, at the time, either unsurveyed, or surveyed but in a very imperfect way.

The narrative begins abruptly, as do those recounted in the former books. Whether this is a fault or not I cannot undertake to argue. It is my style, and is the most convenient way of using the material at command, and that is all I propose to say on the point. The matter would not be referred to but for the fact that a few critics have cavilled because my journeys have not been recorded in diary form. That is a style of writing which does not commend itself to me. I prefer to do my work in my own way, and for many reasons, some of which have previously been plainly stated, and others hinted at, I am not in a position to give strings of dates. It strikes me forcibly that the chief reason my notes have attracted some attention is the circumstance that they were jotted down for my own eyes only, and without the slightest thought of their ever meeting the dazzling glare of the reviewer's search-light. If I can draw a sketch I cannot paint a picture, and I should be foolish to spoil my work (as too many artists do) by attempting to put upon it a finish I am not qualified to execute.

The eleven Western States only are here dealt with. Other States are often called "Western," but improperly so, in my opinion, and I have good authority for confining the designation to the region herein described; and the configuration of the land bears out the correctness of the division adopted.

It is a region still called the "Wild West," and at the time of the journeys detailed was emphatically a wilderness. This is no longer the case, and it is now an assured fact that these Western territories are budding into a great State of the near future. They are still of scanty population, with wide districts of uninhabited land, but are the richest in mineral wealth of all the United States, and contain much of the best agricultural land; and their rise in population and wealth will be as rapid as that of any of the older

States of the East. The network of railways, with which the country has been rapidly covered during the past two or three decades, will effect this. Already, in most of these eleven States, nine-tenths of the game has been killed, nine-tenths of the trees destroyed, a sure sign of the immediate rise of a multitude of towns and cities, and human works of all descriptions. The land can never again be known as I have known it: the past is a fleeting picture which I have endeavoured to fix ere it fades away for ever. Much attention has been given to the natural history of the districts passed through. This, in my opinion, is one of the chief charms of my journeys. But I have not written for the scientific naturalist. Here I am treading on treacherous ground, and the less I say, perhaps, the better. I do not wish to irritate. I have my own views on the subjects of natural selection, evolution, protective colouring, mimicry, etc., and it will take more science than Darwin and Huxley were masters of to convince me that these theories deserve the place to which modern opinion has exalted them. But that is not the subject of this book. I have simply described living creatures as I have seen them, and leave men of common sense and faddists alike to interpret the information given in their own way.

More need not be said in an Introduction, and I leave the reader to draw his own conclusions from the body of the book.

P. F.

September, 1905

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THE ELEVEN EAGLETS OF THE WEST

CHAPTER I

CALIFORNIA

THE sky was overcast, the night unusually dark; and though a few stars were occasionally revealed in the rifts of the slowly driving clouds, there was not light enough to reveal, even as looming shadows, the objects in the surrounding landscape. On all sides we were encircled by a wall of impenetrable blackness, the sombreness of which seemed to be intensified by the faint flickering of our scantily fed camp-fire, in front of which our Indian guide was sitting, lazily watching the negro servant preparing breakfast. We were early astir; for a long and somewhat uncertain ride, as to the character of the country, was to be performed during the approaching day.

To while away the few minutes till the pork should be frizzled and the fragrant coffee brewed, I advanced a few paces into the darkness, watching the heavens for the expected first rays of returning day. A refreshing, but rather sharp temperatured, breeze blew from the West, bracing the nerves with a delightful sense of renewed vigour, and inducing so strong an appetite for food that I was glad to munch at a fragment of biscuit while waiting for more substantial fare.

This breeze is said by the people of the country to blow from the sea; it certainly comes down the sides of the coast range and through the gullies and cañons, but there is never a drop of moisture with it. Never have I seen the slightest signs of dew on the plains of this desert region; and though books and scientists say that there is an annual rainfall in this district, it must surely fall very irregularly or very locally, for I have spent a sufficient length of time in the great Californian Basin to speak with some assurance; and my experience is that rain here falls very rarely and very sparingly. Yet wide stretches of the country are sometimes flooded by the streams which run down into the plain from which there appears to be no vent or escape, the waters eventually assuaging by evaporating, or sinking into the thirsty soil—a soil so dry that large rivers are swallowed up by it, as we shall presently see.

Blowing coolly on the face, the wind conveys no sensation of either moisture or saltness, but rather that of a sharp, mountain breeze; but of its revivifying and health-giving qualities no assurance is required. There is also a delightful fresh smelling odour borne upon it, an odour suggestive of the breeze having passed through a cedar grove; but which is given off, I believe, from the leaves of the sage-brush, and other herbage of this region. The sighing of the wind, and the peculiar call of a bird, are the only sounds to be detected by the most acute ear. The latter is loud and shrill—"chow-chow-chee,"—the last syllable much prolonged. The bird which utters it is small—the "rock-sparrow" of the miners, but bearing a dozen different names in as many districts. The call is a salute to the first dawn of day, which now reveals itself in a streak of pale, cold-looking, pink light in the East, which rapidly develops into a warmer hue; and just as Cookee calls lustily that the pork and coffee are ready for consumption, the bright rays of sunlight appear with almost startling suddenness; for, at this season of the year at any rate, morn and eve come on abruptly as within the tropics.

Behind the lofty Eastward mountains the sun rose in dazzling brightness, tinting the rocks with the hue of incandescent copper, and investing the recesses and cañons at their bases with weird forms, which the eye, not being able to trace, invested with fanciful outlines which they really did not possess. Yet the scene was weird enough, and passing gloomy, in all reality; for there is not a more desolate spot on the American continents than the plain of San Bernardino.

We perceive ranges of mountains on all sides of us, yet the nearly level plain on which we are encamped is from 40 to 50 miles wide, a terrible rock bestrewn wilderness, large areas of which are absolutely destitute of water and herbage—a desert in which many a solitary wanderer, and more than one well-organised and skilfully led party has perished from thirst and exhaustion. "Madman's Sink" is the name of a small hollow where seven miners perished, perhaps mutually destroying each other during the paroxysms of insanity provoked by their attempts to relieve their burning thirst by drinking the saline mud which here takes the place of water. Many such dreadful incidents have the rocks of this desert been witnesses of.

Northward of us, the rounded dome of Sugar Loaf Peak, just discernible at an immense distance, marks the southern entrance into Death Valley. Much of the ground between it and us is more than 100 feet below sea-level, according to a State surveyor who was accompanying our party; and the rocks rise with great abruptness from this sunken plain, thus in appearance greatly increasing their height. South-east of us the culminating point (Fountain Peak) of an isolated range, called the Providence Mountains, is known to exceed 7000 feet in height, and there are other points of not inferior elevation. The country on either side of the Great Central Valley is, therefore, a decidedly mountainous region; but it is in remarkable, and often fantastic, contour, that the rocks are most noteworthy.

Just here about trees are scarce; there are none at all in the flat valley, the soil of which, of volcanic character, is dry, and so loose that when we are on the move thick clouds of fine and highly pungent dust are raised by the horse-hoofs and waggon-wheels, causing constant sneezing, and troublesome irritation to the eyes. So thick is the dust that the waggon and its team could not be seen at a greater distance than 50 yards.

Everywhere there are shallow depressions of all sizes, from a few yards circumference to many miles—the beds of dried-up lakes. Many of them are white and glistening with an efflorescence of salt, or alkaline matter. A few show signs of moisture, and have a quantity of mud in the centre of their beds; others are surrounded with a wide belt of rushes. These, no doubt, are seasonably flooded; and in some cases we see the gullies through which the mountain torrents reach them in the winter. Where there is herbage on the plain it consists of a sorry-looking grass, clumps of weeds and half-starved sage-scrub. As we approach the mountains these patches of vegetation are larger and more numerous, especially in the gullies which are sometimes choked up with a thick, scrubby growth. This herbage is, however, highly nourishing to horses and cattle; and that the country is nearly all inhabitable is proved by the fact that since the opening of the Santa Fe and South Pacific Railways, which cross this forbidding desert, stations have sprung up at 8 or 9 miles interval all along both lines. It is true that many of these stations stand solitary sentinels in the wilderness without a town, or even a house, near them, having been built on speculation in anticipation of a neighbourhood springing up. Still the railway speculators have shown that generally they knew their business; and a station always soon begins to pay its expenses and more. Invariably there is some attraction, mining or agricultural, near the spot where these useful depôts are erected; and it has not infrequently happened that a railway station in these regions has proved the nucleus of a considerable town within two or three years of its opening. The more solitary stations are frequented by a large number of wandering miners, prospectors, etc., and the scattered population of the adjoining country; for, at the present day, ranchmen, farmers and fruit-growers have established themselves on a band of territory running parallel to either side of the line; and irrigation seems to be all this dry, dusty soil requires to convert it into a highly fertile land.

Considered, and always described, as a barren country, the great Central Valley, or Basin, of California, is yet a district in which the experienced backwoodsman would never fail to find a living. It may, therefore, be safely assumed that the disasters to travellers alluded to above, and whose fate and suffering have given nomenclature to many spots throughout all the Western States, were green hands. Many of them have crept under clumps of agave and cacti to die, the broken leaves of which would have furnished them an abundant supply of the liquid for want of which they perished. A very little knowledge is often of priceless value in the wilds. The intelligent, or experienced, watching of birds and other animals, has led to the discovery of many fresh-water springs in this region, yielding a deliciously pure and refreshing fluid. These springs often become streams and rivulets in the winter; for they are all mountain-torrent fed. Some empty themselves into the periodical lakes; but the majority are lost in the thirsty soil which sucks up their waters long before they can find an outlet. Some large rivers are lost in this way, and we passed over, or down, the beds of several such which showed no sign whatever of having been moist for many years. Others, though now dry, were margined by a growth of reeds, and were therefore supposed to be running streams occasionally, that is, after heavy mountain rains. The extensive lake-beds where these rivers finally are lost, are, needless to say, the well-known sinks of the Californian region. Most of those we passed were quite dry, and with only a scattered and scarcely perceptible growth of herbage in their beds. Others, as mentioned above, were encrusted with a saline rime, and some were a wide stretch of stinking mud, the sickening odour of which could be smelt miles before we reached their banks. The sinks are distinct from the dry lake beds; for in all instances dry or wet channels could be traced to them.

Making for one of the thousand and one "Pilot Knobs" which are scattered all over the Western lands, we reached the range of hills, 2000 or 3000 feet high, where the Indian expected to find the promised spring of fresh water. Alas! the two holes in the rock from which it should have flowed were dry and full of dust driven thither by the wind. Our friend, the surveyor, possessed a neatly drawn map of the district which showed the sites of twenty or thirty springs within a distance of a dozen miles; but we could not find one which yielded water, consequently we had a diminished allowance that night. We had brought as much with us from the last sweet water hole as we could carry; but twenty horses and half as many men, in a dry climate, consume a great quantity in the course of a day.

This second night was also very cloudy, and several of the party predicted a storm. They were mistaken, however, though "sheet-lightning" was flashing throughout the hours of darkness. We noticed a change of wind in the early hours of the morning, and it seemed as if the clouds came up from the coast in the evening and were driven back before dawn. Subsequently we had delightfully clear and starry skies, with a gentle breeze which was sharp enough to induce the use of greatcoats at night and morning. Probably the chilly air was felt more keenly than it would have been had the days been less warm, but all Californians declare that the extreme cold and hot waves of the Eastern States are never felt in their favoured country; and our experience entirely confirms this opinion. If snow ever falls in the plains, or on the lower ranges of hills, it is only at many years interval. Even in hills of great elevation (7000 to 10,000 feet) it usually melts as it falls; or at most lies but for a few days. Hail, however, sometimes assumes the form of a veritable plague, beating the branches from the fruit-trees, and destroying cattle and horses, and such unfortunate herdsmen as have not time, or opportunity, to reach shelter from its furious rush.

Continuing our journey we proceeded along the route since taken by the Santa Fe branch of the Pacific Railway; the country rapidly becoming more broken and rocky, and strewn with isolated blocks, or knobs, such few of which as had known names being designated by such commonplace terms as "castle" and "organ" rocks. The names were well enough chosen; for the mineral masses clearly represented the objects indicated, and sometimes it was difficult to believe that we were not approaching a building until we arrived quite close to the rocks.

That night we camped on the banks of a considerable stream of good water. There are many such brooks in the district; but they all lose themselves in sinks within a few miles of their sources. These streams are locally called "creeks"; and some of them, as Cache Creek, are joined by many tributaries, forming a network of brooks which drain an extensive district; yet they are all ultimately lost, like many Australian rivers, in marshes, or "sinks." They abound in fish of several species, which nobody except an expert in ichthyology could correctly name. The popular nomenclature varies in different parts of the State; but blenksops, or blennies, chub, suckers, golden carp, and golden perch, are widely so called; and the two last seem to be correctly named, as far as concerns family.

A few of the rivers, like some of the partly desiccated lake beds, are as offensive as open sewers, the stench, of course, arising from the moist alkaline matter with which the soil is impregnated. The foul mud would seem to abound with life in some of its lowest organised forms; for we perceived many birds of the rail and plover families feeding on the flats and in the shallows. We could not, ourselves, find any living creatures in the mud, or in the impregnated water. Many of the rivulets ran at the bottom of deep and narrow gullies. These gullies, when they are of large size, are called cañons. Seen for the first time they must impress the spectator with a sense of great grandeur; but to men fresh from the Colorado region (see the chapter on that State) they appear somewhat puny rifts in the rocks; yet here and there the gloomy chasms in the larger mountains arrest the attention of even our satiated eyes; and we cannot but involuntarily feel that Nature has surpassed herself in awesome majesty even in these, to us, secondary wonders. Subsequently we witnessed the winter torrents in this region; and then, indeed, we confessed that the scene had a sublimity and grand beauty of its own, which could justly enter into competition with the vaster wonders of the Colorado district.

We saw no big game in this part of the State, so scarce and wild had it already become. The survey for the railway had already been made, and many parties of miners had been prospecting in the mountains and in all the collateral valleys; and the habit of these men being to kill all the game, large and small, which they can see, an extensive district is soon alarmed, and all the larger creatures forsake it till quieter times return.

Many of the birds seemed to be breeding at this season, we therefore forebore to shoot them. Sage-hens were tolerably abundant at the base of the mountains. This is the largest of the American grouse family, the cocks generally exceeding seven pounds in weight; the hens are at least one-third smaller. The cocks are furnished with large sacs at the sides of the throat which they inflate at the pairing season, and give vent to a curious droning sound, which we heard on all sides of us in the early morning. The sound seems to be a challenge to other cock-birds, since they fight furiously for possession of the hens; one cock often possessing himself of as many as a dozen of the latter. Like the wild turkey, he is a great persecutor of the sitting-hen, and will destroy her eggs if he can find them. She therefore carefully conceals her clutch, which is laid in a slight hollow scratched out by herself. The number of eggs is generally nine or eleven, but sometimes there are fewer, and I have seen as many as fourteen in a clutch. They are a pale lilac-grey in colour, speckled with dark brown and grey, and a peculiarity in that the spots are usually clustered on the *smaller* point of the shell—just the contrary to the majority of spotted eggs. There is considerable diversity in the marking of the eggs, the spots often being few in number, and I have found eggs in a clutch which were not speckled at all. The ground colour never has the buffy tint which characterises the egg-shells of the other American grouse. The eggs of the sage-hen are excellent eating. The hen is very jealous of intruders near her nesting-place, and the first clutch taken in this region was discovered through the ill-advised efforts of the frantic bird to draw our attention to another point. With a startled cry she floundered in front of us so apparently helpless that I really believed she had a badly broken wing. The wily Indian knew better, and in a few minutes had discovered and possessed himself of her treasure.

The sage-hen, which is distinguished from other prairie-hens, chiefly by its size and its remarkably long pointed tail, is popularly believed to subsist principally on the tender shoots of the sage-brush. In addition to this food it consumes large quantities of thicket and bramble berries, acorns and insects, etc., especially a large caterpillar, and snails, which they obtain by beating the shell against a stone, after the manner of a thrush. The peculiar air-sacs, which are of a yellow or orange colour, are possessed by the cocks only, and are a purely vocal appendage. When they are inflated the head of the bird is sometimes almost hidden, and the antics they indulge in when drumming or droning, are most amusingly eccentric and funny. The cocks often fight with all the pertinacity of game birds, and I have picked up, occasionally, individuals which had evidently been killed in these combats.

When we got among the rocks we found vegetation fairly abundant, though there are no forests in this part of the State, the trees rather growing in clusters and groves, intermixed with patches of "chaparral thicket." The commonest bushes in this thicket are the buckeye, needlethorn, manzanita, and a kind of dwarf-oak. There are two or three kinds of oak, the black-oak being the largest, growing in scattered clumps, and mixed with several species of fir, or pine, of huge size, giving the landscape a very beautiful and picturesque appearance. Huge masses of rock, cropping out of the hillsides, were half hidden in the creeping and drooping foliage.

Of the pines we saw at least half a dozen varieties, including the well-known Douglas pine, perhaps the most widely distributed of the family in the Western region. There were also "sugar" and "nut" pines, both of very tall growth. The former has cones as large as the human head and larger, weighing several pounds; and the latter has a kernel embedded in each burr of the cone, which is much sought after as an article of food, especially by the Indian tribes. We subsequently saw large quantities of these nuts exposed for sale in the shops of Frisco (San Francisco). There is an abundance of berry-bearing shrubs and trees on the lower hills; but flowering plants were not conspicuous. There are also, on the lower slopes of the hills, and on the plains, members of the cactus tribe; but I defer describing these until I arrive in States where they are a more prominent feature of the landscape.

About the time we entered on the rocky district, which is the first rise of ground towards the sea-coast, we experienced the hottest weather we had to endure in California—but it was not oppressive. The weather was very equable, bright both night and day, with seldom a cloud visible, and the wind blowing for a whole month at a stretch, with the greatest regularity, from the West during the day, and from the East at night time. The nights were always cool, but only refreshingly so.

Soon after leaving Cache Creek we met a party of about forty miners in a very distressed condition, they having crossed the Mohave desert *en route* from the coast to the Sierra Nevada. They had a few pack animals with them, but were travelling on foot; and having come round by ship from the Eastern States were new, or "green," in local parlance, to the country. They had found no drinkable water for two days, they said; and we sent the Indian back with them to ensure their not missing the nearest spring. It is to such inexperienced parties that the disasters of this wilderness most frequently occur.

Five miles further on the valley narrowed to a cañon, which, though dry at present, had signs on its sides and bottom of often being a rushing torrent. At one part it was so choked up with dead pine logs, swept together and interlocked by the force of the running water, that we had to use the axe to clear a passage. In other respects the journey was a troublesome one on account of the abrupt, and often dangerous slopes. Once the waggon was overturned causing us great delay, and some loss in breakages. Leaving another notable landmark, Bear's Peak, on our right, we passed across the marsh which separates two large lakes (Kern and Buena Vista), and entered the valley of the Buena Vista Slough; a name which pretty well indicates the nature of the country — pretty and interesting to view, but a dreadful quagmire in places.

The whole region was evidently, at no distant date, the bed of a vast lake. That lake has been of late years rapidly diminishing in size, the remnant of it being known as Tulare Lake, still one of the largest inland bodies of water in the United States but not a tithe of its size a century ago. It is clear, from the shore marks still existing, that at a quite recent date the waters covered a great part of the territory, perhaps 10,000 square miles in area, now designated Fresno, King's and Kern counties. The whole region is a vast sink in which large "creeks," running waters which, if they had an outlet, would be treated as rivers of importance (one at least when in flood would easily swallow up the Thames), are completely lost. The Kern river, rising on the slope of Mount Whitney (about 15,000 feet) with upwards of a hundred tributaries, can not, in our opinion, have a less course than 200 miles, or drain a less area than 8000 or 9000: yet it is usually utterly absorbed before reaching the middle of the Buena Slough, or swamp. In exceptionally wet seasons its drainage may reach Lake Tulare, and hence by the King and San Joachim rivers to San Franciscan Bay. But the whole course is through reed swamps, locally termed "sloughs."

"Tulare" is said to be the Spanish name for a vast reed-bed, and "tule" is almost everywhere in California the localism for reed or rush. There are "tule" rivers, and plains and sloughs and marshes in many parts of North California, the word invariably denoting reedy, rushy, or flaggy.

Lakes Buena Vista, about 7 miles across, and Lake Kern about 5, are deep portions of the old Tulare Lake, though, fully 60 miles on a bee-line from the present shore of the body of water bearing that name. The Tulare of this time might have been 20 miles across, the shore receding, it was said by intelligent men, at the rate of more than half a mile per annum. We had not the opportunity of taking soundings, but we were assured that the depth of the water does not exceed an average depth of more than 30 feet, with 50 feet in a few deeper places. The margin, or shore, on all parts seen by us was surrounded by a belt of reeds several miles broad. Some of the creeks and smaller pools are completely hidden in the thick growth of tall reeds; and these and the mud prevented a close examination of some spots. Towards the South-east the reed-beds seemed interminable; and, of course, the district is a paradise for wild-fowl. Many gunners lurk here, finding a ready sale for their game at San Francisco. Most of them seemed to shoot from boats or canoes; and they have temporary huts in which they reside during the shooting season, which does not seem to be very well defined, though some men whom we met were not fowling, but collecting eggs: for there is a great demand for rails eggs in San Francisco, just as there is for those of plovers in some of the European cities. There are at least two kinds of rails in the Tulare marshes, one of which is the big Californian clapper-rail, *Rallus obsoletus*, quite a distinct species from the clapper-rail of the Eastern States.

I will not dwell on the natural history of California; but may remark that it does not seem advisable to attempt to establish a State fauna for any one of the eleven territories described in this work, since I much doubt if any species of bird, or other animal, is peculiar to one State. The most marked difference in this respect, and also in the flora, is between the northern and southern parts of the West, and also between the coast line and the country eastward of the Rocky Mountains where it borders on the great central prairie. From time to time I hope to incidentally mention species peculiar to a *district* of the West; here I will refer only to a few which are a prominent feature in the southern part of California.

In the rocky country which bounds the Tulare Valley to the southward the "road-runner" was seen several times. Said to be a cuckoo, it would scarcely be an exaggeration to say that, in outward appearance, it is as much like a duck as a cuckoo. It has often been mistaken for a pheasant by strangers in the State; and, indeed, it has a strong superficial likeness to a bird of that family. It is not a cuckoo in either appearance or habits, but that of course counts for little, yet I am inclined to think it is misplaced by naturalists among the *cuculidæ*. It is a pretty large bird averaging 22 or 23 inches in extreme length. I disturbed one once which ran from under a large bush, where I found two eggs of smallish size and spotted freely, which I concluded were those of the road-runner. The eggs of the runner being said to be pure white, without markings, the question arises if the bird was on this occasion, robbing the nest of some other species.

Often a road-runner would keep us company on the journey for many miles at a stretch, running on ahead, then waiting until the waggon had nearly come up to it before making a fresh start. Sometimes going off a few hundred yards on either side, but never disappearing. The speed of the bird is great, and it is very active, looking like a huge wagtail, and having a similar jerking motion of the tail to that bird. I have never heard it utter a cuckoo's cry, but it has a peculiar angry-sounding note which, once heard, is not likely to be mistaken for that of any other bird. It is not at all a shy bird, and seems to delight in the presence of man, a habit which, combined with the fact that it affects the open country where there are few trees or thickets, is likely to lead to a sad thinning of its numbers, for I am sorry to say that the rough ranchmen and miners often wantonly destroy it. These men sometimes endeavour to keep it in captivity, but I have never known these attempts to succeed.

The road-runner will perch on bushes, but I have never seen it rise to high trees. The opinion that it is but a poor flier seems to be a mistaken one. It flies tolerably well and at some distance above the ground, but it certainly has some difficulty in first rising, vibrating the neck and shooting forward the head several times before obtaining the necessary impetus to use the wings. If chased by a dog it cannot obtain time to rise, and many are caught or killed by these animals.

The deserts of California seem to be better provided with small birds than many of the more densely wooded States, but I have found the difficulties in the way of identifying the majority of these to be insuperable. "Rock-sparrows," "tree-sparrows," "chippies," "pee-pee," etc., etc., are simply popular names bestowed by the illiterate men of the wilds, and convey no information to the naturalist, and these birds differ entirely from those bearing the same designations in the Eastern States. It would, therefore, be mere waste of time to describe them.

The condor, as it is always called in the country, or the Californian vulture, was often seen hovering over the lake and the neighbouring country, generally in small parties. On one occasion we saw as many as twenty together, their flight being quite as grand as that of the celebrated Andes species. Though these birds travel far inland, in search of prey presumably, they seem to breed only in the coast ranges of mountains.

After a stay of a few weeks at San Francisco for the purposes of rest and replenishment, we went down to the celebrated Yosemite Valley, travelling across the country with my waggon, and doing a little trading *en route.* For there was a fair sprinkling of inhabitants in the neighbourhood of San Francisco, even at this time, leaving the impression on my mind that it will be some years before the really fixed population of the State begins to spread through the land. Thirty years ago and more, California had a greater and more scattered population than any other State of the West—but it was largely a floating population; the reason why statistics of the period are of little or no value. Clearly it was the mining interests which attracted these wanderers. Hundreds of individuals and small parties roamed about among the mountains hoping to light on a lucky "placer," or surface mine; and strange adventures and often direful fates overtook hundreds of these men, for the greater part of them were not professional miners, and had no acquaintance with a life in the wilderness. Men of all classes were to be found here from the "born-gentleman" downwards. Professional men, tradesmen, mechanics, trappers, deserters from ships off the coast, labourers, and a host of nondescripts; all these were largely represented; while on the outskirts of the camps there lurked a swarm of human horrors—the lowest of harlots, with idle thieves and murderers, who found it more profitable to rob the successful miner than to labour honestly on their own account.

How men worked and endured, suffered and died, on the one hand; and on the other, won success with heroic perseverance, to often lose it in the hour of prosperity as the result of a moment's folly or vice, there were few to note or record. Strange stories and romantic were current here galore. A man, over sixty years of age, who had been in abject poverty all his days, and who had, with wonderful perseverance, tramped right across the continent from an Atlantic State; and after braving a thousand perils, and overcoming nearly ten times as many hardships, suddenly found himself the possessor of more gold than he could carry. The excitement induced by his good fortune was more than his poor brain could endure, and we passed him on the road being conveyed, a raving lunatic, down to San Francisco. Nor was this a solitary instance of insanity being induced among the adventurers by unexpected success, though we suspect the brain, in most cases, was more injured by the vile drink sold in camp than by the gold. I cannot spare space to record the many strange anecdotes I heard on the road, or to narrate all the sights I saw. The nature of these scenes may be guessed when I mention that, as we neared a place called "Dry Camp," we saw six "boys" hanging on one tree—the result of a trial by "Judge Lynch."

The road almost swarmed with travellers on their way up-country to the diggings, and before we cleared their track we passed several more corpses lying by the side of the road, having died apparently in duels or free-fights. All their companions had been in too much hurry to push on and secure a good claim to stop and bury them; or perhaps they were robbers who had been shot in self-defence by some wayfarers; for the roads were infested with villains and desperate characters, who sometimes eyed our well-stocked waggon with wolfish stare, causing us some anxiety—for we were few in number. Some few rascals openly begged with the strident audacity common among tramps in the United States.

The region between San Francisco and the Yosemite Valley was, at this period, the scene of great activity among railway constructors; and the navvies gave much trouble by deserting almost in a body and joining in the mad rush for the gold mines. Foremen and gangers, often assisted by a sheriff's posse, now and then came into open conflict with the rough Irish navvies; and the latter, when roused by one of these conflicts, were very ugly customers to meet with. To avoid the plunder of our waggon, we were compelled to submit to blackmail to the extent of several hundred dollars' worth of goods; and it was with a feeling of much relief that we got clear of the route of these fellows, and approached the neighbourhood of the Yosemite.

There was not yet a railway to the world-celebrated valley, people coming hither by stage coach. Just at this time, on account of the rough conduct of the men we have referred to, and the molestation of several parties on the road, respectable citizens were rather shy of visiting the Park; but there were some miners and their female companions there, enjoying a holiday. Fortunately they confined their presence and rowdy proceedings to the vicinity of the refreshment-house near the stump of the big tree. "Every schoolboy" has read that quadrilles have been danced on this stump by a dozen sets at a time, but I have not seen it recorded that the surface of the stump has been carefully planed down, and bees-waxed, and turpentined for the benefit of the light fantastic toes of the dancers. A shingle-hut has been erected close to the stump, and there is a rough staging to enable sight-seers to easily mount to view the wonder. The huge trunk, wantonly cut down, lies rotting on the ground, as do several more of the biggest of the trees, while others have had such quantities of their bark stripped off to be carried away as mementoes that they are dying. With disgust I turn from these wretched evidences of the imp-like love of causing misery and destruction which distinguishes the unrefined among men.

The approach to the Valley, or Park, as it is now called (these "Parks," isolated among the mountain gorges, being a characteristic feature of the whole western side of the continent), by way of the Mount Diabolo cañon, is itself a delightful journey, but must be passed over without description. Having given the waggon a rendezvous, with instructions to the men to form a camp and await our arrival, we proceeded ourselves on horseback. The first sign of our arrival at the immediate vicinity of the Park was the dull sound of rushing waters, a sound that, in half an hour, had increased to a sullen roar, intense in depth, speak ing of an immensity of power that could afford to dispense with acute noise in announcing its irresistible orce, conscious that its very murmur was as the subdued hum of a mighty nation when it is provoked o arm, to do or die. The light jest and merry song uddenly ceased, pipes were knocked out and pouched ; nd each man of our party suddenly became silent and ubdued and awe-struck, conscious, whether he confessed to his soul or not, that he was listening to the voice f the Almighty—the Great Spirit of this heaven-gifted ully, and a score more like it, which we passed through efore crossing the boundary line of California the olden.

It is, or rather was, a stiff and in parts dangerous imb to the plane of the Park, for it must be emembered that at the time of our visit the roads ere mostly mere tracks—not the carefully surveyed d excellently metalled carriage-paths which now ad to all the most important points. The ground the Valley itself is almost level, being a beautiful ct of meadow-land enclosed by high cliffs which e 3000, 4000, and in places more than 6000 feet, rming a cañon about 10,000 yards long, and from o to 2000 wide, with the river Merced meandering rough its centre.

There are many side cañons and recesses in the ountains, which are often *cul-de-sacs* through which ere are no passages. Streams of water rush imuously down many of them, and nearly all the falls scend into such subsidiary cañons. A gloomy ndeur pervades the whole Valley ; but the forbidding wn, and the threatening austerity, so noticeable in dark cañons of the Yellowstone and the Colorado, absent from the Yosemite. Here there are perennial flowers and blossoming shrubs—the lovely azalea prominent among them. At our feet the innocent violet meekly half-hid its head among the fern-growth; but we missed the delightful odour which makes this flower so precious to our brothers in the dear home-land. The many coloured beautiful flowers of the region not only studded the ground thickly, but were seen in clusters clinging to the faces of the perpendicular cliffs as high up as the eye could trace them. Wherever a tiny ledge or crevice afforded root-hold there was a brilliant blossom. A few only of the most vertical rocks were bare of these charming adornments.

"Park" is a very correct designation for the Valley, for the trees are arranged in clumps and groves, and no landscape-gardener could have more successfully opened up the general view than has Nature herself. The "big trees" (sequoia) are a conspicuous object, chiefly because the other arborial species are somewhat dwarfed, oaks and tamaracks being the most noticeable among them, though there were many flowering shrubs, the local names of which have escaped my immediate recollection. I was informed that there are always flowers and shrubs in blossom in the Park, there being practically no winter, so completely is the Valley protected by its enclosing rocks.

The big trees have been somewhat exaggerated. It is only a few odd individuals which have sprung up to abnormal height. The majority of the other species of pine in California grow to an extraordinary height, and the average *sequoia* does not exceed the average Douglas pine in either girth or height. In my opinion one of the most remarkable circumstances about nearly all the pines in California is the strange restriction of range of each species. All Californian conifers may be said to be strictly local trees. Their scattered and intermixed growth is also a singular characteristic. I have seen but few woods, and no continuous forests, of one restricted species, and from other sources of information think it may safely be asserted that such do not exist. Often five or six, or perhaps more, different species of conifers are mixed and grow together in one wood.

I do not think it necessary to dwell particularly upon the mountains and waterfalls of this Park, because they have been described so frequently that the subject has become hackneyed. I have also given a detailed description in a former work ("The Great Deserts and Forests of North America"), and here prefer to open new ground, as will presently be done.

There was already, at this time, a coach road cut in the side of the mountains to enable excursionists to reach the head of the Valley—a road that was said to greatly try the nerves of passengers unused to mountain tracks, and, indeed, it was no trifling descent that had to be made, and horses specially trained to this particular work were kept, and always harnessed to the coach on this part of the journey.

Our party rode down on horseback, and the little nag I bestrode, a mare well used to mountain climbing, descended without a slip or false step, often taking her own ground off the cut road, and picking her way with wonderful sagacity in avoiding obstacles, though she sometimes bore me to the very verge of cliffs which had a sheer descent of many hundred feet.

The road was overhung with pines, many of them seeming to be nearly 200 feet high, and below us was a large wood of mixed sequoia, sugar-pines and dwarfed broad-leaved trees, the pines towering enormously above the dark-foliaged small trees. The sugar-pine, by-the-by, is so called from the exceeding sweet and pleasant taste of its sap; but travellers should be cautioned against tasting it too freely as it is highly cathartic.

Of course the views during this ride were splendid, but the objects of interest in the Park are more interesting viewed individually than as a whole. One requires to get as closely as possible under the great Yosemite Fall to realise the full majesty of a nearly 3000 feet torrent, seen through a brilliant rainbow, and sometimes through a succession of them. Again, the closer one gets to the 900 feet Bridal Veil the greater is the wonder excited by the beauty and grace of the curve of so huge a body of water. Some of the minor falls are perhaps the most beautiful, and certainly nowhere else in the world can such a number of cataracts with sheer descents of so great depth be found. This feature is, no doubt, the result of the extremely perpendicular character of the cliffs. Take El Capitan for example. Some unfortunate men were once blown over this remarkable mass in a wind tornado, and they fell sheer into the valley below. Many, nay most, of the cliffs are absolutely unscaleable by either man or animal, and strange to say (or so it seems to me) very little débris collects at the bottom of the Valley. There is more perhaps at the foot of El Capitan than elsewhere, but even there there is no great quantity. El Capitan is one of the barest of the rocks. There are trees on the top at the back of the mountain, but only a few blades of grass are visible from below on the face of the cliff.

Some of the falls are difficult of approach, but there are one or two which the traveller can get quite close to, and, if his head is strong enough, stand almost within touch of the rushing, roaring water, where it leaps over the cliff, and look down on the enormous cloud of white spray 500 feet beneath his dizzy perch. Few men have nerve to try this experiment, and one should be sure of himself before attempting it. The sensation of the spectator is that he is being drawn down by the whirl of the waters, and he steps hastily back, unable to endure the appalling feeling of imminent destruction.

The Nevada Fall is perhaps the most picturesque of all the falls in the Park as it is certainly the wildest. Its torrent is so much churned by its broken channel, so beaten and rent by rocks obstructing its descent, that it reaches the Valley a seeming cataract of milk, while the misty film arising from and hovering over it, in certain states of the weather floats half-way up the cañon, enveloping trees and rocks in a wet fog. The Nevada is really a roaring torrent from its very source 4000 feet above the level of the Park, or more than 10,000 above that of the sea. At one part of its course it rushes with a screaming sound between enclosing rocks which are a mere rift in the mountain, appearing to be about 400 feet deep. It is impossible to descend into this grave-like fissure, and so difficult is the country, that I believe few persons except backwoodsmen, and the like, have ever visited it.

There are no lakes in the Yosemite Park; the much written of Mirror Lake being a mere pond, only a few hundred yards across, and of no interest except for the remarkably clear reflections of the surrounding rocks which it gives on its surface. It is surrounded with a grove of tamarack, buckthorn and oak, intermixed with pines, and has a strip of sandy fore-shore. It seems to be owing to its extremely smooth and still surface that objects are reflected from it as on a mirror. It is quite startling to view the reflection of one's face on its waters, so vivid is the presentment. The lake is said to never overflow its banks, but at the beginning of summer, when the snows melt, up in the head mountains, its waters are often very turbid, and fail to give the usual shadows.

There are one or two other small ponds within the Park which seemed to us to be, generally, quite as picturesque as the Mirror Lake; but every object here is superbly grand, or enchantingly lovely, and most often both combined.

It is probably owing to the sheltered position of the Yosemite Valley that the big trees are so highly developed in it, though it is doubtful if ever more than a few scores attained much above the average size. This seems to be the southern limit of the sequoia, for proceeding northward we found these trees scattered in scanty clumps about the mountains. They seem to range in height from 100 to 200 feet; but it is to be remarked that nearly all measurements given in this chapter are either guess-work or gleaned from the information of people about the Park. The statements in the books of others being open to all enquirers need not be repeated here. I wish to give original information only; but there is no reason to doubt the assertion that the tallest of these trees exceeded 300 feet. We did not see any that seemed so tall as that. The largest, which have been felled, certainly much exceeded 200 feet; but they are lopped, and show-logs (for exhibition, etc.,) have been cut from them. Their original measurements could not, therefore, be taken. We saw logs exceeding 20 feet in diameter, but the largest standing specimen we measured was 44 feet in circumference, about 4 feet above the ground—

that is, nearly 15 feet in diameter. This tree was not 100 feet high, and generally the largest in girth were not the tallest. Few of the latter were more than 30 feet in girth, and some of about 150 feet in height, were only 18 in circumference, or about 6 in diameter; the tape not fitting very close on account of the rough and fissured bark.

The sequoia is of pyramidal form, nearly the first half of the trunk being bare of branches. The lower branches are somewhat pendulous, the higher ones, on the contrary, growing upwards, forked like the arms of a candelabrum, the whole of them being knotted, twisted, knarled in an oak-like manner. The foliage is thick, but light and graceful in appearance, and the whole tree an object of great grandeur and beauty, especially when seen isolated, standing on some projecting rock, as it often does. It is essentially a mountain tree. There is another kind of sequoia, also said to grow to a height of 300 feet, and felled specimens of which I have actually measured which were 240 to 270 feet high before destruction. This is the red pine of California. There are a few of these pines scattered about the Yosemite region; but further north it forms forests of considerable extent to the exclusion of other trees—a most unusual thing in California.

The wild inhabitants of the Yosemite Park, and the mountains beyond it, going northward, we found to be numerous in such spots as were most free from amateur hunters, who are the most persistently selfish of animal slayers, the professional trapper seldom being a wanton destroyer. The grizzly bear is known to lurk here, but we did not see any. White-tailed deer were sufficiently numerous to enable us to supply ourselves with meat without going far out of our way. We shot four unusually fine specimens, which were fat, and in excellent condition of meat and pelage.

The white-tailed deer (*Cervus leucurus*) is, we know, a subject of doubt and dispute among naturalists. We are assured that it is identical with the common Virginian deer, an animal with a remarkable tendency to local variation—a variation, however, almost entirely confined to size. In some districts it is barely a hundred pounds in weight, in others double as much. The white patches of fur, of which so much is made by some writers, are of no importance whatever; for they differ in form and extent among individuals of the same district.

There are several species of squirrels in these mountains, two of which I particularly noticed. The first is a large grey squirrel which I could not perceive to differ from *Sciurus carolinensis*, except that it is larger than that animal in the Eastern States; and seems to be more often found on the ground; and also to frequent pine trees, which I think is not a common habit of the Eastern variety.

The second species is the tiny little creature, scarcely bigger than a mouse, known locally as the pine-squirrel, a creature so small that when first noticed hopping from branch to branch at a dizzy height in the pine trees, it was mistaken for a bird. It appeared a mere dot, and the details of its form could not be made out until one was seen near the ground. It ran up the rough stem of a sequoia with the speed and agility of a mouse, which animal it greatly resembled in many of its movements. It was only seen on pine trees, though it evidently sometimes came to the ground, and was tolerably numerous.

In the more secluded, rocky cañons, small flocks of the Californian quail were met with, many of the birds having covies of young with them, numbering about a dozen each. The conspicuous crest of black feathers on the head of this bird, arranged thinly one behind the other, remind one forcibly of the crested poll of a Red Indian. The bird is rather shy, and very quick in its movements, running to shelter like a partridge when disturbed. It will not rise on the wing until compelled to, and then it starts up with a whirring noise and startled cry, again reminding one of a partridge. When all is quiet, and the hen thinks herself unobserved, she appears from under a tuft of herbage, or a low, ground-creeping shrub, with her brood following her one after another like so many little geese. She strides sedately about, uttering no sound, unless suddenly alarmed; and finds some minute food, apparently ants, small beetles and slugs, for her young, which watch her intently for these morsels.

Our road northward lay through deep cañons, and over mountains of great steepness; and we passed through several parks which rivalled the Yosemite in beauty, and had this additional charm in our eyes—that they were undoubtedly not so hackneyed as the latter place; and perhaps some of them had scarcely been visited before. They all had the same characteristics, the valleys being well wooded, but not crowded with trees. Pines, and dwarf-oaks with buckeye, thorns, and tamarack shrubs being the most numerous species of arboreal vegetation. On the rocks scarlet and white azaleas clustered in large thickets, affording a delightful sight; and there were many other shrubs in blossom with flowers of many hues, amongst them a wild rose, and a bine of the honeysuckle kind.

Sometimes a turbulent stream roared, with thunderous noise, down the centre of the cañon; and more often a brook or tiny runnel sang sweet music among the rocks over and around which it fussily forced a channel toward the larger streams. Now and then we came across a waterfall which, if less boisterous in sound, and smaller in dimensions than those of the Yosemite, was not less beautiful. Several of these fell great distances. One in particular greatly impressed my mind with its sublimity. Shooting out from under some dark and forbidding-looking rocks, which overhung the abyss, it dropped a heavy stream of water into a hollow 100 feet below, and thence fell, a broken sheet of purest white, full 500 feet further, its final descent being hidden by the dense brush which concealed the huge rent of its cauldron.

Falls of all sizes were here in these charming valleys, from the tiny shoot in which the hand could be safely held, to rushing cataracts which howled and thundered in an appalling way, striking awe into the breasts even of men used to such magnificent natural scenes. Some fell hundreds of feet, others only a few yards. Over many of the torrents we could easily leap our horses, while some of the largest and finest drove us miles out of our way to find a passage round them.

The road was extremely difficult, and dangerous in places. We had an Indian guide with us, but he was only imperfectly acquainted with the road, and we had sometimes to retrace our way many miles before we found a passage in the required direction. Accidents occurred, and the horse of a comrade broke a leg and had, of course, to be shot. Our unfortunate companion was carried in turns behind each of us, thus putting a greater strain on our horses, and much increasing our difficulties.

I have never thought of attempting to make a figure among the dashing horsemen of this region, but I could not help feeling proud of my gallant little mare — she did her work so neatly and willingly. I permitted her to pick her own way, which I have always found to be the best and safest with a reliable horse, and her intelligence and pluck were really wonderful, and lead me to think that the natural habitat of the horse must be among mountains, and not on plains, as seems to be generally thought. Whence, else, comes the sure-footedness that many horses so readily acquire in rocky countries?

In spite of my confidence in my horse, however, the continuous strain on the nerves occasioned by constantly braving the involuntary horror of swaying over sheer precipices of hundreds of feet in depth, and the shocks occasioned by frequent falls of loose rock, and the consequent struggle of the mare to retain her footing, made me glad enough to rejoin the waggon and find myself once more on the comparatively level ground of the great Central Basin, and two days more of travel northward brought us in sight of Mount Shasta, one of the giants of the Californian mountains.

The first view of this noble peak was somewhat singular, the base being hidden by mirage in which the forest was shown with the trees upside down, and a number of white streaks which seemed to be partial reflections of the snow beds on the summit of the mountain, which is snow-capped, and during the middle of the day seemed to be suspended in the air. Afterwards the whole mountain was visible, from the base upwards, the snow gloriously tinted crimson and flame-colour by the setting sun. Ordinarily the peak is grey and white, the latter colour, of course, imparted by the snow. A mere glance is sufficient to inform the eye that the cone is of volcanic origin, as all the cones in these mountains are.

It is singular that while there are no active, or even apparently slumbering, volcanoes on the Eastern side of either the North or South American continents, or in the central plains, they are present on the West Coast States and countries from the far north to the extreme south, at very frequent intervals; thus showing that there must be a line of subterranean fire under the entire western side of the dual-continent. In these Western States, however, none of the peaks can be described as active, though, as we have had ocular proof, one or two of them are evidently only slumbering, and may break out into eruption at any moment.

Mount Shasta is quite an isolated mountain, standing out from the range to which it belongs, so that it is possible to travel quite round it without climbing mountains or rocks. The height is so variously given by different surveyors that it is certain it has not been accurately measured, but it may be safely received that it is about 11,000 feet above the surrounding plain, which is said to be 3000 feet above sea-level, that is, about 14,000 feet in total height. 14,380

The country at its foot is an undulating park-like plain, with large woods intermixed with expanses of grass prairie—a quiet, beautiful land with undoubtedly a pastoral future before it. There is no continuous forest, and the woods are mostly of the mixed kind already described. At one time this plain swarmed with deer and American antelope, but the mount lying in the direct route of miners and others going north, they have been almost exterminated or driven into the as yet little known country to the north-east. There is a good deal of sage-brush at the base of Shasta, among which there are a great number of small volcanic cones, probably amounting to many hundreds. They are of various sizes, some of them being small hills.

Three of our party determined to make the ascent of Shasta, and we took with us the Indian and the black cook. A stranger who happened to be in the neighbourhood also joined himself to us, so that the party numbered six in all. Expecting to have a long journey, we started at daybreak, but the ascent, on the whole, is not difficult. The base is covered with pine woods, and this part of the ascent is very easy.

Beyond the pines, is a belt covered with brushwood and scattered bushes. As these occupied very thickly the ravines and hollow ways which were the best pathways, we had to use the axe frequently to cut a passage, and thus found this belt the most fatiguing part of the ascent. There were several rills of water running down the hillside, but no stream of any size. These rills were evidently fed by the melted snow from above, a great part of which we afterwards discovered was already dissolved before the rays of the summer sun. It is only by guess that we can fix the height of the snow-line. There was no unbroken field of snow until we got within about 3000 feet from the summit, and about here we met with the first sheet of ice, which was several hundred yards in extent, filling a ravine, and showing the appearance of being a small glacier. Others of varying size were afterwards found, on the second day, for on the first we failed to reach the summit by several thousand feet. A guide was wanted, but as one could not be found we had to trust to our own discretion—hence the failure. We retired to the thicket belt, lit a fire, and after making a cup of coffee, and eating nearly all the provisions we had brought with us (for the mountain air rendered us very hungry), lay for the night under the bushes, rolled in the heavy Mexican blankets we had bought at San Francisco. The atmosphere was sharp, but did not much trouble men used to sleeping in the open; and about the middle of the night the bushes in the neighbourhood of our camp caught fire—the result of carelessness on our part. Efforts were made to beat it out, but a big patch of the bush was burnt, and, as we afterwards learned, the flames were seen by the men left with the waggon, who mistook the fire for a signal, and sent a party to our assistance.

With the first streak of dawn we resumed the ascent, having first worked round to the north-east part of the mountain, and by ten o'clock A.M., we were on the snow-field. This part of the slope was rather rocky, and we had some climbing to do, which necessitated the use of the rope, but at mid-day we came to a small plain immediately under the cone, which was free of snow. We imagine that this level space was formed by the breaking away of the side of the cone at some remote period. There were several small pools of water on it, the largest about 50 yards across. We could not discover any springs to feed these, and as the water was icy cold, though unfrozen, there is no doubt that they were simply collections of snow-water, and were probably of only temporary existence.

But the most remarkable feature of this level space near the summit was a number of fissures from which thin clouds of steam were slowly issuing. The hand could be held in this steam for perhaps a minute, when the heat became unendurable. The sulphurous emanation from these fissures was very strong, and on a stone attached to 40 yards of string (unfortunately all we had with us) being lowered into one of them without finding bottom, in a short time both stone and string were covered with a film of apparently pure sulphur. There were no cones about these fissures, and none of them much exceeded a handbreadth in width. Steam was also leaking from places where no opening could be perceived.

We could not ascend much further, being compelled to stop about 150 feet below the actual summit. The hollow of the cone was filled with masses of frozen snow and ice, and here we could not see any apertures emitting steam or smoke, and to all appearance there had not been any active discharge from the volcano for many ages, though some of the steep cliff-like rocks had a washed look, and were coated with a yellow deposit, probably sulphur, streaked and scored with black, brown, and grey of many shades.

The few masses of rock which lay scattered about the sides of the mountain, or half embedded in it, all had a smooth and much weather-worn appearance, leaving the impression on my mind that they had lain on their present sites for a very prolonged period of time. Some of the blocks seemed to be so nicely balanced that it looked as if they could be set rolling down the slope with a slight push; but on trying the experiment we found that they were literally "as firm as a rock." Smaller masses thrown down, bounded away many thousands of feet, ploughing up the loose snow, and sending it flying in the air in a long straggling cloud. This play greatly amused some of the party, though it seemed it might be dangerous to persons chancing to be on the mountain. It is certain, however, that the stones ceased to roll long before they reached the belt of brushwood.

The day was a beautifully bright and clear one, and there were no clouds beneath us; consequently the range of vision was immense, and the scene that of a fairy-land. Our friend, the surveyor, who was still with us, and who was tolerably well acquainted with the district, could name many prominent landmarks which enabled us to estimate the distance we could see across the country. A large body of water gleaming brightly in the north-east was known to be Goose Lake, distant 70 miles. A smaller body of water due north was at first mistaken for Rhett Lake, another large sheet; but as Rhett Lake was afterwards found to be hid behind Mount Hoffman, it must have been one of the smaller pools to the left of it. Several tiny ponds, nestled among the rocks, seemed almost within reach of a short walk, so much is apparent distance reduced when viewed through the remarkably clear and pure air of this grand mountain. Mount Hoffman, little more than half the height of Shasta, and 20 miles away, seemed almost under our feet, so great is the command of vision given at this elevation; an elevation rendered yet more dominating by the unusual circumstance in the surroundings of high peaks that there are no mountains in the immediate neighbourhood to interfere with the immense lines of sight. Some peaks of great height, seen dimly over intervening ranges in the East, our friend declared to be in the State of Nevada. If so, they were fully 100 miles distant.

Looking southward over a sea of rocks and peaks the scene was grand beyond description, and I cannot attempt to map it; the thousand details necessary to give a faint idea of the varied shapes and groupings of the mountains, could only result in confusion to a mind not actually drinking in the wondrous panorama.

Details in the plains were not so distinct, the woods and groves of trees appearing as dark, indistinct patches; but trees never show up well when surveyed from great heights. In the open space eastward, two or three columns of blue smoke were thought to mark the wood-fires of wandering Indians. These were the only signs of human life we could discern; my own waggon being hid among the trees at the foot of the mountain.

Animal life on Shasta does not seem to be abundant. The plains about the mountain and its lower slopes also have been a favourite hunting ground of both Indian and white trappers; and the big game is either destroyed or rendered very shy; though we saw a few deer on the plains, and afterwards met a party who had recently shot a brown bear. On the slopes of Shasta itself, however, we saw no mammal larger than the so-called hare-squirrel which inhabits the lower pine-belt. A species of small drab moth with black and white markings was seen in the brush-scrub in small clouds; but above, on the bare parts of the rock, not a fly or beetle could be found, though we were on the look-out for such objects. Of the few small birds seen on the mountain there is nothing to record; the most noteworthy of them being a quail differing from the common Californian quail noticed in the Yosemite Park, in having but two feathers in the crest. I have recognised this bird from a museum specimen, as *Oreortyx pictus*. It was seen here in small flocks in places where the herbage was scanty. The pied swift *Aeronautes melanoleucas*, was numerous about the base of Shasta, and in smaller numbers quite half-way up the sides. We saw a few, indeed, as high up as the herbage line, where they seemed to be searching for the small moths already described. This swift seems to have a very extensive range, as I have seen it in nearly all the Western States, and also in Mexico.

The air on the top of Shasta was keen, but not so cold as I have usually found it on other high peaks of the West in about the same latitude. Four of our party complained of a "tightness of the chest," accompanied by a slight difficulty in breathing; but the Indian and myself did not have this experience, and it is worth remark that we were the only members of the little company who were habitually in the habit of *breathing through the nose*, which I feel assured is the method of inspiration intended by Nature, and the observance of which is not only a good way of preserving health and ensuring long life, but is also the surest guard against inhaling malaria. I do not say it is an absolute preventive of contagious infection; but the individual who breathes through the mouth, and so permits the air to reach the lungs unfiltrated, runs a far greater risk than he who warms and largely clarifies it by passing it through the nasal passages.

I think the temperature of the small flat space near the summit of the mountain was much higher than that of the slope lower down. The hand placed on the ground gave no sense of warmth, even near the steaming fissures; but the circumstance that the snow did not lie there was proof that it was warm enough to melt it. The fact, also, that the pools of water were unfrozen showed that the heat of the subterranean fire had influence at this great height.

We lingered some hours on the summit of Shasta, and darkness overtook us before we reached the brush-thicket; we had, therefore, to pass another night on the mountain side, this time without food or water, as we were afraid to drink that obtained by melting snow, former experience having taught us that there is a deleterious quality in the mountain snow-water of these Western ranges. The party from the waggon, which started in response to our supposed signal, failed to find us, and we had to wait a day until their return.

Making for Lake Rhett, which lies on the State border line, we passed over the Modoc lava-beds near Mount Hoffman. These beds are remarkable for the extraordinary and fantastic manner in which the huge blocks of lava have weathered, reminding me of the "rock cities" in Tennessee and other parts of the east side of the Continent. The lava, of enormous age, think, seems to be much harder than the under-soil, which has gradually washed away, leaving the volcanic encrustation in thousands of formations at once curious and grotesque. Figures of men and animals, though roughly, are unmistakably represented in great variety; and there are many natural arches and bridges, some of which have an opening 20 feet or more in height, under which the traveller can pass. It is possible to climb up to the bridge or cope of some of these formations; and one that I thus ascended at considerable risk to neck and limb proved to be 51 feet in height, though the tunnel through it was not more than 8 or 9 feet high, and roughly worn.

Blocks, angular and rough, are scattered thickly about the plain, and make the travelling bad, the numerous holes or hollows between the blocks endangering the horses' legs, and making it difficult to find a passage for a waggon. The vegetation of the plain is scrubby, consisting of a few bushes and sage-shrubs, with a growth here and there of rank grass and weeds.

We hurried through this region, as the Indians, who are numerous, had assumed an offensive attitude recently, and trouble between them and the State authorities was said to be brewing. We saw a few small parties of them who halted to watch us, but did not threaten an attack, probably because they did not feel themselves strong enough to fight, as the waggon must have been a great temptation to them.

Much of interest in the State of California is necessarily passed by to avoid trespassing on the space which it is desired to devote to the other "Eaglets." I, therefore, hurry on to the next State northward.

CHAPTER II

OREGON

OREGON, a Pacific Coast State, like California, stretches much further inland than the latter region. The border district between the two States is a land of great lakes—the largest in the West. Those of these large bodies of water which we passed by on a broad well-grassed prairie, were bordered by a wide band of tule, or reeds, in some cases, in others completely buried in such a growth, being, in fact, simply extensive marshes. The country, on the whole, was evidently rich for pastoral and agricultural purposes; but as yet, it would seem, entirely destitute of other inhabitants than the wandering Indians, whose charred fire-places we passed at frequent intervals, to our no small anxiety; as we heard from a party of mounted soldiers who were in pursuit of some murderers, that these gentry had committed several dastardly outrages within the month. We saw none of the Red-men, however, and lost no time in getting among the mountains, where we stood a better chance of successfully defending ourselves if attacked. The Indians had, no doubt, their hands full in looking after the soldiers, and the broad trail of the waggon was not followed up.

Journeying across the prairie, the first marked rise of the ground was a series of "buttes" or cliff-faced hills. These, as we advanced, rapidly increased in elevation, until we came to clusters, rather than ranges, of mountains with almost absolutely perpendicular faces, which looked as steep as a wall. On these faces no vegetation could possibly find space to root, but the tops and upper sloping sides were densely wooded with intermixed conifers and broad-leaved trees — red and sugar pines holding a prominent place in the forests.

There were not many trees in the open plains, except in the marshes and about the pools, where there was often a thicket of large shrubs. Here, for the first time in this district (that is the South and Central Western States) we found the juniper growing abundantly. There were also many other shrubs, or small trees, partaking of the character of those growing in more Northern latitudes ; and although the border line between Oregon and California is a purely arbitrary demarcation, one had not advanced far into the former State before a most marked change in the character of the country was noticeable, which was all in its favour as far as fertility was concerned. In picturesqueness the scenery of California has a beauty of its own, which if equalled, is not exceeded, by that of any other Western State.

As far as we could discern, the Cascade Mountains, along and among which we were now travelling, while containing a large number of high, snow-capped peaks, usually of cone-like form, are specially characterised by the number of spurs shooting from the main range, and its deep and sublime looking valleys—valleys in the correct sense of the word rather than cañons, although these last were not wanting.

It would seem that the country where we first struck the State was but little frequented ; yet that circumstance alone could not account for the large quantity of game we met with. The abundance of grass and tender shrub-vegetation had probably as much attraction to the large herds of deer and wipiti, as the absence of much persecution by hunters. The last-named deer, locally called the elk, was not met with in California though there were probably a few left in the remoter parts of that State. Generally it had already shared the fate which befalls big game in all countries as soon as there are a sufficient number of idle fellows lurking about to start on the work of killing everything they can see that is big enough, in their estimation, to be worth a bullet.

There are both black and grizzly bears in the mountains, and among the buttes facing the prairie. We did not actually see any; but their footprints sometimes crossed our path in all directions. According to the trappers there are three or four different kinds of bears in Oregon, all of which are found in the Cascade Mountains; but I consider all kinds of brown bear to be simply varieties of the black bear. A difference in colour is quite sufficient to found "a kind" in trapper opinion. It may be stated that other large animals of which we found evidence that they were not scarce hereabout, were wolves of the common grey sort, and pumas, locally called "painters" or "panters"; *i.e.* panthers. This, it will be remembered, was nearly forty years since. Probably large game is much scarcer now. Other animals will be noticed as they are met with.

Our road led us across the south-west part of Klamath marsh, a very extensive tract of swampy ground, covered in places with dense patches of juniper, laurel, and elder; and everywhere with a waving field of sedge or reeds of gigantic growth, harbouring thousands of ducks, rails, and a kind of heron or crane.

The passage of this marsh was very troublesome, the waggon and some of the horses being repeatedly embogged so that all the men had to dismount and pass both the vehicle and animals along one by one with great exertion and considerable danger of themselves being swallowed up in the tenacious mud. Probably Klamath marsh is the sink of a river of considerable size. We know that several rivulets lose themselves in it. We were two days and a night wallowing in this dreadful slough, it being impossible to camp or even to halt longer than a few minutes at a time as the ground was so quagmiry that we feared becoming inextricably embogged.

All the time we were in this dismal plight, Mount Scott and the range northward of it was plainly visible, seeming quite close indeed, in the pure clear air, even at night-time, for the moon was at full, and the scene was, perhaps, grander after the day had closed than in the full blaze of the mid-day sun.

Immediately after getting clear of the marsh, we found the ground begin to rise with a sharp slope; and the country, undulating somewhat, was soon covered with a goodly sprinkling of trees among which, besides poplars and other trees not seen in California, we were surprised to find a kind of wild cherry. Here also, we saw several humming-birds, lovely, vibrating, glancing, gleaming films of violet and green light, the wings appearing light grey from the lightning-like quickness of their motion—things of such a markedly different type of beauty to other earthly birds that I wonder the hyper-superstitious Spaniards, who fancied they could see the finger of God in every extraordinary natural wonder, did not designate these living gems "the birds of Heaven." They were hovering around some low trees, and darting among the branches. As there were no blossoms there the inference is that they were hawking for flies.

Our object being to get among the mountains, and ultimately to follow the valley between the Cascade and Coast ranges, we entered the widest of the openings before us; but soon found that this vale resembled the path of life, inasmuch as it turned out that the *broadest* was not the *right* road. The head of the valley was a precipice down which a cataract of no great size, but very turbulent current, rushed a foaming, spraying sheet of water, which completely barred the way. We had, therefore, to turn back, having gone 20 miles out of our way.

A narrow pass, almost a cañon, 12 miles south of Mount Scott, proved to be more practicable, and as men and horses had been much tried by the last week's work, it was proposed to rest two days—a Saturday and a Sunday as it happened—while a few of us, who were anxious to see as much as possible of these beautiful States, paid a visit to Mount Scott.

The ascent of Mount Scott, which seems to rise some 4000 or 5000 feet above the plain (it is marked about 7000 on several maps, above sea-level, we presume) is quite as easy as that of Shasta; and the view, while considerably less imposing, is much more picturesque. The slope composed of ashes which seem to be decomposed lava and broken scoria, afford an excellent foothold; there is no great danger to the climber at any point, and the deep gullies and rents full of a magnificent forest growth, give a never-ceasing interest to the view, which changes at every few hundred yards of the ascent. There are brawling brooks, with here and there a tiny cascade, in most of the gullies, and all of them showed traces of having been watersheds at some time of the year.

If snow ever lies on the summit of Mount Scott it is probably only in the winter; there was none here now, at any rate. We did not reach the highest point of the peak, being on the wrong side of the Mount for easily attaining that spot; but on our side the mountain gullies were wooded right up to the level of the lake cliffs.

This lake, Crater Lake as it is called, is the chief beauty of Mount Scott, and is a wondrously enchanting sheet of water. Buried in a huge hollow with precipitous sides, the spectator's first view of it (from this side of the mountain, if not from all points) is from a height of several hundred feet above its placid waters, which generally lie smooth as a mill-pond, reflecting the surrounding rocks and forest groves as clearly as the Yosemite Mirror, but now and then are ruffled by the daintiest of ripples purling slowly in white foam across its bosom. The breadth of the lake—some 3 to 4 miles across—is sufficiently great to permit the dancing sunbeams to play on each tiny wavelet, while the height of the surrounding cliffs completely protect it from the wild freaks of Boreas. The Crater Lake is said never to be visited by those sudden and fierce blasts of wind which render the navigation of all large inland sheets of water so perilous. Peaceful and calm, with the beauty of a serene nature, it now was; and instinctively we felt that it was assuming no false character. It is one of the most delightful lakes our eyes ever rested on; yet it reminded us of a much smaller body of water—a mere tarn—we once found hidden among the mountains of the Coast Range or Cordilleras, as it seems to be the fashion among geographers to term them, hough I do not remember to have heard this word orth of Mexico.

Crater Lake is nearly circular in form ; and occupies, s its name implies, the extinct crater of Mount Scott. There are indications that the cone of the Mount has een destroyed by one of those violent eruptions which ccasionally work such dire destruction in volcanic egions. It is easy to see, by the contour of the nountain, that the dome-like cone, a characteristic of early all the peaks in the Sierra Nevada and Cascade anges, has, in this case, been violently destroyed ; robably by a sudden explosion. The appearance of he ground seems to indicate that the cone could not ave gradually worn away ; besides the depth of the rater is against such action.

The walls of the crater have been deeply cut into, or racked by the seismic disturbance ; and the gullies thus ormed, like those on other parts of the mountain, are ull of trees and shrubs and brushwood, so that it is ifficult to penetrate among them. In most places the ava, or rock walls, are almost sheer down to the water ; ut here and there one can climb down through the avines. Snags and rocks, fallen from above, clog he depths close to the shore, but the water deepens ery rapidly and seems to be nearly everywhere of great epth. It is full of fish, but of how many varieties e did not ascertain, as we had no means with us of ttempting to capture any of them. There is a kind f trout among them which appeared to weigh, judging from its size, four or five pounds.

Huge rocks could be seen looming up from the depths f the water, and there is a small rocky islet some istance out from the south shore. The enclosing walls ndicate, from the marks on them, that the level of the water is liable to considerable rises and falls; but we did not see any outlet for the superfluous floods which must collect here after the rains and snows of winter. Probably a great number of tree-trunks fall into the lake; but these seem to sink on becoming saturated with moisture.

One of the most beautiful sights of the lake, in my eyes at any rate, was the myriads of ducks rising and settling on its placid expanse. The clamorous rise of a vast flock of these birds was a sight to send joy to the heart of any lover of the beautiful living things which bejewel this lovely earth; and it was not without a pang of remorse that I fired among them to obtain a few for food, an experience which was evidently new to them, for they came flying fearlessly right over our heads, affording us easy shots, until a little suffering had taught them that there was death in the angry crack and spiteful spit of flame which came from the strange implement in the hands of the strange intruders on their usually quiet domain, and they grew wary.

These ducks were of several kinds—the common mallard, not numerous; the scaup duck and the cinnamon teal, both in enormous flocks, and a larger dark-coloured bird, not recognised, with others which did not come within reach of our guns. There were also a few brent geese here, and some gulls; the latter evidently on an inland excursion—not an uncommon habit of many, and perhaps all gulls. None of the marsh-loving birds, such as rails, etc., were seen on the lake, but a bittern was shot half-way down the hillside as it rose from a swampy gulch. It was the only one seen in this district.

A pair of ospreys haunted the lake. Their nest was discovered in a red pine tree, almost on the edge of the crater wall; but probably the breeding season was over as the young were not seen.

Mount Scott is not the highest peak in this district. A much higher was seen a few miles to the south-west, another still further west, and a yet higher, Mount Thielsen, due north of our position. None of these peaks were enveloped in clouds; but the weather was extremely bright and fine with a cloudless sky. Four or five snow-capped cones were within sight; but there was no snow on Mount Scott.

In descending, probably because we walked much faster, and therefore occasioned more disturbance of the loose ground, the dust was a great nuisance, occasioning continual sneezings and much irritation of the eyes. But there are drawbacks everywhere; and it must be confessed that the ashes of which the ground is composed afford an excellent foothold in both ascending and descending. We did not come down by quite the same line chosen for the ascent; a more easterly road appearing to offer greater facilities for quick movement; and as we moved round the lower edge of the crater we obtained a splendid view of the east part of the cone, which towers to a tremendous height above the water—not less than 1600 to 1800 feet I should think. This seems to have been a portion of the original crater, the walls on other sides having been blown outwards by the force of the eruptive explosion. To all appearance this taller part of the encircling wall is an absolutely sheer precipice. It has a blasted and fire-riven aspect; and, examined through a spy-glass, not the slightest trace of vegetation could be seen upon it. On other sides of the crater the distance down to the surface of the lake was about 600 feet.

Still proceeding northward the country was, locally at least, a high plateau, but with heights, bluffs and peaks at frequent intervals. During the next three days we passed many extinct craters, and crossed innumerable lava streams and beds, which Mr Moseley, the surveyor friend whose party had joined mine for mutual help and protection in this, at the time, not very safe district, said were of enormous age; and he was, undoubtedly, a good geologist. Conjecture of the time since this was a country of huge volcanoes of a size such as no modern eruptions can give a notion of would be futile. "Remote ages" was a frequent phrase of Mr Moseley's, and by that he meant, he said in reply to a question, a period of not less than hundreds of centuries. Even to my untrained mind and eye, this seemed to be no exaggeration of the time. The whole scene wore an ancient air; huge blocks of lava, bored, undermined and arched in a similar manner to those on the Modoc plains in California, and great rivers of débris with a surface of dust, the result of decomposition during an immense lapse of time, were signs that could not be misinterpreted by any intelligent observer of them. It was manifest, too, that the forests of ages had flourished here, died away, and been succeeded by successive forests in an interminable line. The roots of great pines which looked to be a thousand years old were twined among some of the smallest and most recently detached of the blocks; and these pines, in many instances, rivalled the giants of the Yosemite for height and girth.

On the third day we came to Mount Thielsen, a peak which resembles Mount Scott in many ways. It has in remote times, probably in the very same catastrophe, met with a similar accident to that of Mount Scott. The crater has been shivered to atoms, and a lake formed in the lower part of it. This lake seems to be rather larger than Crater Lake, and is of a more elongated form. It, also, has a wild beauty which is scarcely less attractive than that of the more southern pool, though it is lower, and not so closely surrounded by precipitous cliffs. Possibly the crater it occupies is distinct from that of Mount Thielsen. It is a point on which I had some doubt. The pool is named Diamond Lake, but it has no connection with Diamond Mount, a peak considerably to the north of it.

There is a whole chain of these lakes extending in a line half the length of the State; some of them much larger than Diamond and Crater Lakes, while others are pools and ponds of very small size; but all those which we visited occupied extinct craters or hollows which had been formed by convulsions of the earth. These lakes are situated on the eastward margin of the Cascade Mountains, and the trend of them due north and south is so correct that if a straight line be drawn down the centre of the region they occupy it will be found that none of them are 20 miles east or west of it. All those we examined contained deliciously pure water, which is so clear that objects can be seen in it at a very great depth, and they were all well stocked with fish, and frequented by vast numbers of wild fowl. Many of the lakes on the plain to the east, however, are strongly alkaline.

We know nothing of the state of this part of the country at the present moment, but at the time of our journey it was absolutely void of inhabitants. Not a single Indian or miner was met with, nor any traces of their visits seen, though it is certain that some of the natural wonders we have described were occasionally visited by tourists, and other sight-seers from the Eastern States.

Next to the mountains and lakes, the sources of numerous streams were perhaps the most beautiful objects of interest. The great rivers of the State which run coastwise are said to originate in this range. We could not recognise the source of any particular river; but streams run from the rocks both eastward and westward. The latter must all be lost in the sinks and marshes repeatedly referred to in these pages, as no river runs across the prairie from this region. Nevertheless, their sources and upper courses are frequently situated in the midst of scenery far too lovely to be painted with pen alone. Some of them originate in the lakes, at elevations of many hundreds of feet; others gush out from the rocks. These latter particularly take their rise in the wooded gulchs, probably bursting out from subterranean lakes,—and many of them are known to be perennial; in fact we surmised that some of the crater lakes lose their superfluous waters through these gully-springs. Some of them burst forth from large holes in the rock with terrific force, and their courses, as far as we traced them, were a succession of leaps, rapids, and falls over exceedingly rough and rock-strewn beds; yet often overhung with magnificent specimens of the pines of the region, some of which much exceeded 200 feet in height, with a diameter of trunk of 12 or 13 feet. When freshets come down from the higher mountains these streams temporarily become great rivers, and there were abundant evidences of what playthings huge rocks and trees then become to the fierce fury of the tumultuous torrents. We saw trunks 6 and 7 feet in diameter, which, having become jammed among the rocks, had been broken through like sticks by the force of the water. Others had been split and broken in a most extraordinary way, and still others thrown up on the side rocks, and piled in confusion, one on another, to the height of many feet, giving the country a most dilapidated and untidy appearance.

Not many miles north-west from Mount Diamond there are a few small caves which look as if molten matter had run out of the hollow, leaving a shell of lava. On entering one of these caves a small lynx ran out past us, but was shot; and on examining the dark recesses we found a litter of four young ones, which were old and strong enough to scuttle away in different directions. This is the only occasion on which I have known a lynx to have more than two at a birth, and consequently I have doubts if these were all of the same litter. Three of them were captured, and I kept one for many months endeavouring to tame it, in which I had but indifferent success. For a long time the little animal was very fierce, and when left to itself sulked a great deal. Ultimately it got to know and recognise me, purring, when caressed, with a stronger, rougher noise than that of a domestic cat when pleased, but in a somewhat similar manner. When displeased it would attempt to bite, but never to scratch, nor did it use its claws when it was played with. It seemed fonder of my black servant than of myself, which was singular, as "Cookee" was not partial to animals, and was often cruel to them. After a time "Puss" appeared to be tame enough to be allowed some liberty, and was sometimes permitted to come out of her cage. Her habits were much like those of domestic cats. She loved to lie in the sun, was exceedingly lazy, and would creep towards any birds or small animals which she saw near her, and suddenly spring upon them, generally with success. She had, therefore, to be kept confined when we were in the neighbourhood of ranches or farms where poultry were kept.

She would "spit" or snarl, just like an ordinary cat, at dogs which came near her, and also at strangers, towards whom she never evinced the least friendliness, however patient they might be in striving to win her confidence. She was an inveterate thief, generally hiding what she stole, as she was always well-fed, eating almost any sort of ordinary food that was offered to her—vegetables excepted. She was fond of bread and salt-pork, but, naturally enough, preferred freshly killed animals. She would leave any kind of food for milk, of which she was passionately fond, and it was by offering it to her that I first succeeded in getting her to follow me. She liked to be alone when feeding, and an attempt to touch her at meal times was always fiercely resented. She felt the cold a good deal during the ensuing winter, and loved to lie close to the stove in the waggon. She travelled with us as far as Wyoming where she was one day missed, having undoubtedly wilfully forsaken us.

It is questionable if the lynx could be tamed; but greater success might have crowned my efforts had the animal been obtained when younger. I specially chose a female from the three young (the other two were males) captured, in the hope that she would be more amenable to kindness than a male; but taken on the whole, the lynx is such a shy, cunning, and solitarily disposed brute that I think it is extremely improbable that it could ever be induced to show much affection for its owner.

Not far from these caves a horned toad was picked up. It tried to escape by running at a goodly pace, but on being intercepted by a stick placed before it, it stopped short, raising itself on its toes and remained quite motionless, and so remained while being handled, making no further attempt to escape.

This horrid looking little creature is really a lizard (*Phrynosoma cornutum*, I think, after examining preserved specimens) and not a toad, and is remarkable as being the creature which is said to shoot drops of blood from its eyes at its enemies as a means of defence. We saw numbers of these lizards in California, but this particular one was the only specimen seen in the State of Oregon. I did not observe the singular habit referred to above, and shall have more to say about this further on. In appearance it is the ugliest of the reptiles of North America, and few persons care to handle it, even with the knowledge that it is quite harmless. The numerous short spines, with which the head and back are covered, give the creature a most formidable look, but its powers of offence and defence are similar to the frightful devices on a Chinese shield—not likely to hurt those who have the courage to defy them.

From the Diamond Lake we entered the valley of the Willamette, and very soon were among the attributes of a rich, and fairly well-peopled, country, in the shape of numerously stocked farms and ranches, where we received the usual warm-hearted hospitality which never fails to meet the traveller in any part of North America—United States, or British Territory. Here, also, were "cities," towns, and villages, most of them in their infancy, but clearly enough destined to speedily become full-grown rivals to their sisters of the East. It is my business, however, to describe the wild, and not the cultivated, tracts of these Western Stars; and therefore, after mentioning that we spent an enjoyable week or two among newly-made friends here, we will once more resume our lonely waggon-journey. To our regret we lost the valuable society of Mr Moseley here, he having engagements which precluded his accompanying us further; and henceforth, except for adventitious additions, our party consisted only of myself and three attendants, one of them the black cook who served me for a prolonged period in the United States, and who, though faithful enough in general, was not to be counted on in the hour of danger. Yet our little company wended its way through all manner of perils by flood, torrent, and mountain-pass, suffered nothing worthy of note from the numerous bands of hostile Indians, and as much to be feared white rogues, and finally completed its prolonged wanderings without meeting more than a few temporarily trying accidents. In some things we were certainly most fortunate.

Though evidently destined to become one of the most important districts in Oregon, the Willamette Valley was not yet what in an older State would be called a populous region. I love the wilds—the absolute wilderness. It is a peculiarity, an idiosyncracy, of my nature. Consequently when I find the country dotted over with farms and villages, however widely apart they are set (and it is astonishing over what a wide stretch of country the first few thousand inhabitants of a new State spread themselves), it is, comparatively, spoilt in my eyes. But I am not so devoid of sense and taste as to ignore the beauties of the country on account of the disfigurements of men which encroach on it; and the Willamette Valley is a wondrously beautiful spot. It is Alpine in character; that is shut in on all sides by lofty mountain ranges. The soil, in main and branch valleys alike, is exceedingly rich being the accumulated vegetable detritus of ages; and as a consequence the varieties of both animal and plant life are very numerous. Oregon, indeed, is one of the best supplied, in both fauna and flora, of the Western States; and we saw a greater number of small birds here than in any other of them, amongst which may be enumerated the American yellow-bird, *Chrysomitris tristis*; the crested jay, *Cyanocitta macrolopha*; the crimson-headed tanager, *Pyranga ludoviciana*; and a great many others which I have been unable to certainly identify, among them a titmouse which greatly interested me on account of its familiar and pretty tricks.

This bird, which resembled one of the commonest on the Eastern side of the Continent, but was larger, had all the antics of the European species which are familiar to everybody, but to an exaggerated degree. The little acrobat seemed never happy unless hanging head downwards. He appeared to be perfectly sure that no person about the waggon would harm him, and he entered that vehicle and, I think, explored every corner of it; now hanging by the feet from a shelf where he exerted himself to wrench open a stout brown paper parcel, and now peeping into sundry jars, or helping himself to the fragments which remained in the frying-pan. He readily spied out the minced fat and meat placed for his encouragement; and he, and his mate, pecked it up without evincing the slightest sign of fear. He would even enter the waggon while I was sitting there, flying in and out, and from shelf to shelf—always restless, always in motion—even while eating; and scarcely ever out of sight during our three days' sojourn in the neighbourhood.

The common long-horned owl, *Asio americanus*, was so abundant hereabout, that we saw or heard it most nights while we were in the central part of the

State; but we did not sojourn long enough at any one point to learn much about the habits of the animals of the district.

The sharp contrast between the immense bare rocks, and the growth of dense forest which fills every valley, gulch and hollow, is often relieved by solitary trees, or clumps of them, growing on exposed ledges; and sometimes crowning the very summit of a craggy mass. It is not always easy to perceive why the rocks are destitute of vegetation. Here an exposed ledge will have its cluster of pines, and there, close by, a much better sheltered crag will be without even a blade of grass, or tuft of alpine weed, to hide its nakedness.

The sugar-pine is here the tallest, and the most graceful, of the trees. Many specimens are certainly 300 feet high—100 yards—an immense height for a tree; yet few of them exceed 6 or 7 feet in diameter; for the sugar-pine is one of the slimmest, as well as one of the highest, of its family. The whole outline of the tree, and the set of its foliage, is graceful past description.

There are also a few tamaracks in this part of the Cascades; but not so many as in the Sierra of California; and what there are will probably soon be destroyed. For the settlers say the wood of the tamarack is better for all kinds of outdoor work, such as bridging, fencing, etc., than that of any other tree found in the West; and they cut down all that they can find in accessible places. The men of a ranch will fell trees 50 and 60, or more, miles from home and throw them into a stream which bears them to close home. Oxen or horses are then harnessed to the logs by means of ropes or chains, and they are thus dragged to the spots where they are to be used. In this way two or three homesteads soon denude

1000 square miles of ground of all the best trees; exterminating some kinds without a thought or a care.

The tamarack is often here called the black larch, and the black spruce—the latter an evident misnomer. It much resembles the common larch; but perhaps the branches are not so pendulous in their manner of growth. The cones are larger, and of a bright crimson red colour, giving the tree a very beautiful appearance. It sometimes grows to a size and height that in any other forest region would entitle it to be considered a giant. I have seen roughly trimmed logs which were 110 feet long by actual measurement—quite 20 or 30 feet less than they must have been *in situ.*

Other trees of the Oregon Cascades are cedars, poplars, laurels, ashs, willows, birches, and all those of the pine or fir tribe already mentioned, even a few sequoias having been seen by us; but here they are not "the biggest trees." Besides these there are hundreds of others of which I cannot indicate the specific name; and bushes and shrubs in as great number and variety as the larger trees: for this part of Oregon is a thickly wooded region. It is only the stupendous side-wall rocks that are bare of trees. Wherever the valleys and gullies are swampy the vegetation is so dense that it cannot be penetrated until the axe has been freely used. The settlers sometimes clear these densely wooded spots by "burning off"; an act which ought to be treated as a criminal offence. The burning of timber, for the purpose of clearing the land, is one of the most wicked and selfish of actions, and is sure to inflict a serious loss and discomfort on future generations. And it should not be forgotten that with every destroyed tree there perishes a wood-nymph in the shape of some lovely creature possessed of animal life.

Naturalists may talk and write glibly of the abundance of life on plains and in deserts; it exists, in fact, in such places, very meagrely. Destroy the trees, and with their fall, shrubs and bushes, and other vegetation, have so much sympathy that many of them perish also, and with trees and shrubs go all the most beautiful and interesting birds and mammals. Deserts and prairies have beauties of their own, but they are like uncut and unpolished gems, show not their chief charms until placed in a suitable setting—a setting of forest growth.

Portions of the Willamette Valley which we passed over, were an almost level plain, remarkable for its similarity to English park-land. The trees here were mostly oaks, arranged in splendid groves, clusters, and single trees, but never growing close, as in a forest. This was a favourite haunt of the white-tailed deer; but their exceeding shyness told a story of frequent harrying. The herds, too, were small compared with those seen in the southernmost part of the State. Evidently the trappers and the settlers had taken heavy toll here.

The Willamette River, like all the streams in these mountains which we examined, has a rapid current and is broken by falls. None of them could ever, it seemed to me, be used for boat service into the heart of the country, or coastwise, but they afford too ready a series of channels for floating down timber logs, and I saw plenty of evidence of the rapidity with which a gang of lumber-men can clear a tract of country of its chief ornament. Owing to the fierce character of many of the torrents, and the jagged rocks which encumber their beds, many of the logs are broken or lost by being jammed in narrow channels; but the gentlemen who make piles in the lumber trade do not trouble much about such loss.

The falls of the Willamette do not appear very striking to a traveller fresh from the grand displays of the Yosemite and the Sierra Nevada, but they are thought a good deal of by the people of the district, and are certainly beautiful, if not grand. At the point where they are situated near Oregon City, the river narrows considerably, and the waters pour over a ledge of rock in many cataracts, which are now used (horrible desecration) for generating electric light "power." I took a long and toilsome journey for the express purpose of seeing them, and to my disgust found a steamboat landing a party of excursionists just above them; for there is traffic on the lower reaches of the river. Like most things that are much lauded, they are not of the best, and I returned to my wandering, wheeled-home, determined to find my own wonders in future. All along the river I found signs of human life—towns in many stages of development, farms, ranches, and the superior dwellings of well-to-do citizens, and it seemed to me that my little jaunt was almost a triumphant progress, so much was I interviewed, questioned, petted, and forcibly entertained. Literally, the kind-hearted people of the Valley "compelled me to come in" to their houses, and seemed to think that I had performed an almost miraculous feat in travelling so many thousands of miles in one waggon with so few attendants.[1] I quite failed to convince them that my success in the undertaking was entirely due to the luck which usually attends happy-go-lucky and careless persons.

Round every dwelling in both town and wild I noticed fine orchards, and procured apples and other fruits in abundance; the apples particularly, for fineness of appearance and flavour, reminding me of those of my native land. This is, perhaps, not surprising, for in both California and Oregon, and especially in the latter State, I found wild apple-trees in all the lower wooded ranges; and these trees, as well as many old oaks, were often almost buried in the *mistletoe* which clustered on them. Not having any knowledge that the mistletoe plant was to be found in the Wild West, the discovery of it interested me greatly. Does the mistletoe follow the crab-apple everywhere? and is there any natural connection between the apple, the oak, and the mistletoe plant?

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[1] It should be mentioned that this was really the concluding stage of my journey which ended at San Francisco, but for the sake of sequence in the narrative, and following the plan I have laid down for my guidance, the States are not described in the exact order in which they were visited. See Introduction.

There are already many made roads, corduroy roads in particular, in the valley, and these are acknowledged emigrant and traveller routes. Roads of a kind are even made over some of the passes and through the cañons; but these general routes have a serious drawback. They are diligently watched by the marauding Indians, and most of the thefts and murders which so frequently occur take place on the well-marked roads. While soldiers, or the sheriff's posse are watching one end of a pass, the Redskin is too frequently at his fell work at the other. I am a strong friend and admirer of the Indian as a rule, but am impelled to admit that he is a tiresome "cuss" in this region.

Once back at the waggon I lost no time in re-starting northward, and for reasons hinted at above, went on a by-path of my own choosing in face of strong friendly advice to the contrary. There are numerous passes over the Cascades, many of them easy roads for a waggon: indeed the range may be crossed by a traveller within a few miles of a given point almost anywhere within the State, and laterally the travelling through the cañons is remarkably easy for the nature of the country, but dangerous in winter or when the weather is stormy. For all these cañons are liable to suddenly become the beds of raging torrents which sweep everything before them, and deaths from this cause are frequent among emigrants and mining parties.

Continuing our way along a gully about 12 miles long called Castle Cañon, according to some trappers who were camped in the neighbourhood, we came to a great buttress overhanging the pass, and covered to the summit with giant pines, many of which were undermined and hanging by a few roots, ready to fall at any moment. Just beyond was a natural tunnel about 30 yards in length, lofty enough, but so narrow that we had to break away some projections with a pickaxe before the waggon could pass. On gaining the other side we perceived that we had run a very great danger, for the tunnel was evidently on the point of collapsing, and it is a wonder that the strokes of the pickaxes did not cause a vast accumulation of loose rocks to rush down upon us.

Thankful at having escaped this danger we passed round the face of a huge mountain rising 2000 or 3000 feet above us, with a frightful precipice on the left hand. The path was a natural one, so rough and rock-bestrewn, and so narrow here and there, that it seemed impossible that the waggon could safely pass, and frequently I remained halted, with heart almost beatless watching in horror the huge waggon swaying over the gulf, and threatening every few minutes to fall over. There was nowhere room to turn round or bring the horses to the rear, so that we could not turn back, and we had no choice but to continue on in the hope that the road would improve. I seemed doomed to lose the whole of my property, and a dozen horses in this terrible pass, and perhaps a life or two, for the men, poor fellows, were brave and faithful, and jeopardised themselves in strenuous efforts to keep the horses on their feet.

After about 5 miles of this dreadful road the path ascended the face of a mountain at a sharp incline, with an enclosing wall of rock on either side, at least 1000 feet high, and so perpendicular that in the space of 16 or 17 miles there were not more than a dozen spots where a man could climb 100 feet upwards. At one of these spots there is a small cleft or recess, large enough to hide a man, at a height of 150 feet, and known as Jones' Hole. It is said that a party of ten trappers was caught by hostile Indians in this pass and massacred, a man named Jones alone escaping by climbing to this hole. The Indians remained for several days and nights watching like wolves, and sometimes offering the fugitive terms if he would surrender, but he too well knew that no faith could be put in their promises, and refused to listen to them.

Some of the Indians were brave, or rash, enough to attempt to climb up to him, while the rest of the band stood with their rifles to shoulder ready to take snapshots at the trapper the instant he showed himself. But when the climbers arrived close to the cave Jones could aim at their heads without exposing himself, and he sent several of them tumbling down, and proved to their comrades that they could not take him that way. Smoke him out they could not, neither could they get sufficiently far back in the narrow pass to aim into the cave, and ultimately Jones was saved from death by starvation by a rescue party which had learned of the massacre. At the far end of the pass is a mound known as the "Nine Graves," though there is but one, where the slaughtered trappers sleep, and this exploit and tragedy will probably furnish names for some future vast work of their fellow-men ; a large percentage of the ranches and villages owing their familiar nomenclature to such wild incidents as this just narrated.

We passed that night at an elevation of about 4000 feet above the valley, which means 6000 or 7000 above sea-level, and a most uncomfortable one it was to man and beast. The wind blew from the north-east sharply, and the trend of the few shallow gullies on this part of the range happening to be in that direction, we were exposed to a chilling draught, to counteract the miserable effects of which we made large fires of the stunted pines which grew here, with but very partial effect. For the wind being very strong, we could not lie on the leeward side of the fire on account of the smoke and suffocating fumes of the pine-wood, while, on the windward side, the draught drove all the heat from us. The horses, poor things, were shivering and restlessly neighing, and we had to unpack our whole stock of blankets to cover them with.

There was no snow on the ground here, but the next morning thin pieces of ice were seen floating down the currents of several mountain streams which lay on our road, the passage of which was a ticklish business, though none of them had more than 2 feet of water in the deepest places. The trouble arose from the strength of the torrents and the number of loose, sharp rocks in their beds, and so much hauling had to be done that it was evident that a waggon in this country required a dozen men to handle it. However, we by-

and-by came on to another portion of the plateau before mentioned, and here, in spite of rocks and loose blocks of lava, we got on at a very fair pace, and no incident happened until we came in sight of Black Butte, a very prominent object rising seemingly about 5000 feet above us (about 8000 above sea-level).

These buttes are always remarkable points throughout the whole of the Western States. The term seems to be applied to huge rocks of a *triangular*, or pointed, shape, in contradistinction to the peaks which are usually volcanic cones. Black Butte is a mass of angular rocks, surmounted by a central mass of a dark colour, hence, we suppose, the name. The usual gullies are choked with the usual growth of trees, but the buttes are absolutely destitute of vegetation, except, perhaps, in a few sheltered hollows, and have a most bare and forlorn aspect. The angles are so sharp and clean cut, that, but for their enormous size and acute steepness, one would be tempted to believe that they must have been scarped by human hands. But this is a characteristic of rocks in all parts of the West, and especially of the Cascades, Coast Range, and Sierra.

Among the gullies at the foot-hills the pines had a particularly blighted and wizened appearance. Many of them were dead and others dying, and among the best the foliage appeared only in meagre patches, and devoid of the usual symmetry of growth. We believe them to have been wind-blasted, for it is remarkable that we suffered more from keen gusty winds about here than in any other district of the Coast States. These chilly breezes blew from no particular quarter, but were constantly changing direction. This may have been a spell of abnormal weather, or simply a local effect; but it was quite contrary to the usual equable and constant winds we experienced in other parts of this and the adjoining States. I am inclined to think that these cold breezes are local, and are of the nature of concentrated draughts, occasioned by concentration in the numerous elevated gullies. For wherever the forest was attempting to creep up the ravines on the mountain sides, it had the blasted, or withered, appearance just noticed, and this over only a limited district.

From the rise at the base of Black Butte we obtained our first view of Mount Jefferson, snow-capped and 10,000 feet high. It appeared of the usual cone-like form; but the range generally has a most remarkable rent-to-pieces-like appearance. Indeed no rocks we have ever seen reminded us so vividly as these of *ruins*, on a giant scale of course. Suppose some enormous battlemented wall, a mile and more in height, to be rent to atoms by the explosion of gunpowder; let ages elapse, and trees begin to clothe the base of the ruins, leaving many huge masses still exposed, sharp-lined, scorched and often still blackened, and quite bare of even the creeping lichen, and you have the general appearance of the Cascades, on their outer flanks at any rate, and where the gushing torrent and cataract does not play, invigorating and encouraging a growth of vegetation. The numbers of "castle" and "cathedral" rocks met with in all parts of the range show that the configuration alluded to has caught the popular eye; and, indeed, viewed from the distance of a mile or two, we have often been deceived, and believed that we saw buildings crowning the summits of some of the hills, or nestling in the hollows half-way up the slopes. For the pinnacles and broken rocks are found in all situations from the bases to the crests of the mounts. They do not seem to be the result of weathering; but rather to have remained, with but little alteration, on their present sites since the time of the seismetic convulsions which formed them.

We did not approach any nearer to Mount Jefferson; but near this point reached the plains to the East, through a vast cañon, where the pine-forests grew thicker, and were more extensive, than in any place hereabout we had yet passed through; thus proving that the prophecies of our friends in the Willamette Valley (and those were not a few) that we should never succeed in getting our waggon over the Cascades anywhere in this district were wrong. We had made enquiries with a view of gaining that information which ranchmen, hunters, etc., are often so eminently able to give, and had been assured by every one of them that there was no passage for a waggon by the route we proposed to take. The impression was left on my mind, however, that our informants were not thoroughly acquainted with the proposed road; and I had past experience in being misled to make me wilful. So after all advice, and in spite of it, I followed my own course with successful results. And it is my opinion that a waggon, if sufficiently well-teamed, can be taken with ease, and without danger—except from marauders, white and red—across the United States in *any* direction—north, south, east, or west—and that without a previously mapped-out course; although, needless to say, previous thought, and a *plan of action*, will doubtless save much time and trouble.

With regard to myself, I always sought to learn the experience of trappers and herdsmen; but while often gleaning much useful information from men of these classes, I generally had, ultimately, to fall back, to a great extent, on my own resources. The most reliable guides are Indians, if Indians who know the proposed route can be found.

I had a good knowledge of woodcraft, and some very rough experience of wild life, before I ventured to take a waggon on a journey extending to several thousand miles in length; but I soon arrived at the assurance that waggon-travelling is the best, safest, and most comfortable for a long journey. For distances under a thousand miles, especially if speed is an object, a horse is very good. The rider can carry sufficient provision to last that distance, and if he can rely on himself, may trust to pick up some provender on the way, even if the country is an absolute wilderness. But it is a marvellously good horse, and man too, that is not pretty well knocked up by a thousand miles' ride in a lone land; for both, it must be remembered, will be without shelter the whole time, and the man will never so much as remove his boots. All this discomfort is avoided if a waggon is taken. Provisions in abundance, every necessary, and many little luxuries, are then carried, and also extra corn for the horses—and an occasional feed of corn is of the greatest value in preserving the health and strength of a hard-worked horse. The waggon affords shelter to the men at night, and to some extent to the horses; for in bad weather, and on open ground, it is a great protection to them to tether them on the lee-side of it.

On very long journeys much must be left to the chapter of accidents; but if certain rules are observed by the traveller he is not at all likely to meet with serious drawbacks. As a preliminary, some reliable information is always to be had of the country it is proposed to travel through. The best maps obtainable should be studied, other travellers questioned, and above all, preliminary experience acquired. A man who has roughed it in the wilds is never a stranger in any wilderness.

It would be out of place to dwell long on the subject here; but it may be remarked that there are many natural guides to the traveller in a strange country. For instance, rivers, or even large watercourses, are sure, after a few trials at most, to show a way through, or round, mountain ranges; and if the adventurer has a gift for his work, his eye will soon teach him to read the face of the country with astonishing certainty. I have known sons of the wild, both Indian and white, pick out a pass in a mountainous tract they had never seen before, with the assurance of intuition; and the signs which guided them can be learned by the man whose heart is in his task. No wanderer need perish in any of the wilds of America. I am convinced that the Northern Continent could be tramped across with ease by anybody worthy of the name of a backwoodsman. It is the civilised, not the natural, horrors of the journey that I should have my doubts about.

At the foot of the Black Butte mass we found a few Indians encamped, watching over an old man who was dying. He was said to be ninety-eight years old, and was both blind and deaf; but when we sent him some little comforts he knew instantly that white men were present, and returned his thanks in very good English. These Indians were friendly, and seemed to be harmless hunters, belonging to a Shoshone tribe.

At this period the Indians of the West, and, I may add, a great number of those of the East, were not yet under the complete control of the various State

Governments, nor collected on reservations. I am not here going to enter on the Indian question, but will just say this in commentary on certain remarks passed on my assertions anent the Red Men in a former work. In more than one instance the States' Governments (not the National, or Congressional Government, be it noted), having entered into treaty with the Indians of their respective districts, and having appointed them reservations of what was believed to be land of no particular value, afterwards, when the Indians, by most praiseworthy industry, had improved the land and made it of value, turned them out without compensation of any kind, and placed them on far removed reservations which were undisputedly barren and worthless tracts. I am prepared with time, place, and date, and defy contradiction of this fact. No doubt many of the Indians, under provocation, have been murderers of men, women, and children; and many of the United States soldiers, with, and without, provocation, have also been murderers of men, women, and children. This assertion cannot be contradicted. All men are equally savage when their worst passions are aroused.

With regard to my account of the distribution of the Red Men, I shall enter into no dispute. Formerly, and until long after my experience of the country commenced, many tribes, or portions of tribes, wandered practically where they willed; that is, over all the wildest portions of the Continent; and though, generally, each tribe, or nation, remained on its own territory, many fugitives from United States tyranny fled to other regions, and particularly to British Territory. Where it is asserted that I found Micmacs or Crees, it may be relied upon that I did find them.

The Indians of the present district (Oregon and California) are a sorry lot. The Apaches are the most war-like; and they seem to be irreclaimable rogues; indeed a large tribe of them are known as the Rogue Indians. (I believe that the Rogues are of the same stock as the Apaches, but am not quite sure of it.) They are the "Crows" of the south-west, and live by plunder; and have, perhaps, given the "constituted authority" more trouble than any other tribe on the Continent.

The other Indians of the district seem to be a number of fragments of tribes, rather than independent tribes; and there has been much intermarrying among them which has, of course, done much towards obliterating tribal pride and exclusiveness. Those who have preserved the tribal connection most strictly seem to be the Apaches, Modocs, Yukas, and Comanchoes. But many of the Indians about here take their name from the district which they inhabit; as the Mount Shasta Indians; the Mount Hood, Klamath, Malheur, and Snake River Indians. These are looked upon as vagabonds, or outcasts, by such gentlemen as the Apaches, Comanchoes, etc.; but they are mostly friendly towards the settlers. The same method of Indian nomenclature is prevalent at least throughout the Coast States; the Pitt River Indians being one of the strongest tribes in California.

All the Indians of the Northern Continent, the Esquimaux excepted, are doubtless derived from the same ancestral stock; but they differ much in outward appearance, the result, probably, of scarcity or abundance of food, of erratic habit, or degeneration. Climatic conditions do not seem to have much to do with this difference; at any rate, they do not act in the direction one would expect; for the Indians of the warmest and most genial of the States are often the most degraded and degenerate of the aboriginal tribes; while some of the smartest, and most amenable to civilisation, are found in the boreal regions.

These Shoshones, for instance, were dirty and besotted-looking folk, giving one the idea that they were an utterly cowed people, who had lost all self-respect and care for themselves. They had not that look of intelligence which is generally a distinguishing feature of the Red race; and the women were positively repulsive-looking; while many of the women of the Northern and Central tribes are nice-looking, if not positively handsome. However, in one point I have found the Indian women alike everywhere in America—they are always most friendly disposed, and that in the best sense of the attribute, towards white men. All the Indians are particularly sensitive to kindness, the women in the highest degree so; and their gratitude is not of the transitory kind.

Everyone is familiar with the shape of the Indian wigwam or tent; but I seldom saw a dwelling of this shape hereabouts. The huts are mere hovels or shanties; and sometimes simply lean-to's, as the Australians call them; that is a hurdle, or a few planks, propped up at an angle against the wind, on the lee-side of which the people make a fire, and sit and lie. Plank huts are very common, the planks being obtained sometimes from such out-lying settlers as have a saw-pit, but much more frequently from abandoned mining-camps. Occasionally huts, of the conical, or wigwam shape, are made of branches of trees, daubed over with mud, or with turf walls built over them. These are generally small of size; for the family, as a rule, and when the weather is not bad, prefer sleeping in the open. The huts are always in an exceedingly filthy condition.

Here, as elsewhere in the Northern Continent, the Indian mothers pack their infants into a sort of case exactly similar in shape to an Egyptian mummy-case, only the heads and faces of the little creatures being visible. The arms are packed close to the body, and it is not possible for the child to put them outside the case; yet it never seems to suffer from cramp or lassitude. It is always quiet and contented, and its little bright eyes follow every movement of those about it in grave silence. It is extremely rare that an Indian child is heard to cry; and I believe that they only do so when hurt, and never from peevishness like white children.

There is a hide-sling attached to the case, by means of which the mother carries it about on her back when moving from place to place; but while she is engaged with her work she stands it down in an upright position against a tree-trunk, rock, or the wall of the hut. The child is kept dry by means of a strip of bark neatly arranged as a channel; and it is not unpacked until the close of the day. By this arrangement the mother is saved a great deal of trouble in managing the child, and it cannot crawl into mischief or danger. It is a singular sight to see her suckling a seemingly coffined child. Indians as a rule are fond of their papooses, or children, and seldom punish or ill-use them. On the other hand, Indian children never seemed to me to be tiresome, or given to mischief, like those of white people. They have many games which resemble those of white boys, as tops and kites; but whether these were known before the colonisation of America it never occurred to me to ask. But it is certain that a game of "knuckle-down" is quite peculiar to Indian children, as is also their remarkable skill in forming "cats' cradles." The young Indian boy begins to learn the use of the bow and arrows as soon as he has strength to pull the string—at three or four years at latest—the reason, probably, that Indians formerly attained to such strength and skill in bow-shooting.

The old Shoshone died quietly. There was none of that poetical death-song singing of which we read so much in Fenimore Cooper and similar writers; but it is fair to add that I was, on one occasion in Wyoming, present at the death of an old Indian, who not only sang a death-song, but insisted on dying in the open air facing the setting sun, and he actually stood up, as straight as a youth, a few minutes before he departed. It was a very unusual thing for the older Indians, before they had become besotted with the white man's rum, and other pleasures of civilisation, to become decrepit; they remained strong and active to the last. This remark applies to the North Continent only. There has always been a strong contrast between the personality and habits of the North and South American Indians, and those writers who deny this are stating what they surmise, not what they have learned by personal contact with the aborigines of *both* divisions of this truly-called New World.

The prairies of this part of Oregon greatly resemble the meadow-prairies of Eastern America. The grass, tall and rank, and growing in thick bunches, is fully 5 feet high, and crowded among it are many showy flowers. It affords excellent cover to the game, which was at this period tolerably abundant, so that we sometimes passed several days without seeing any of the many animals of whose presence we were assured by their numerous tracks, and other signs. The Indians, and the white hunters too, destroy the game wholesale by setting fire to the grass, and shooting or trapping the affrighted and bewildered animals as they rush through spots purposely left free from flames. The trapping is done by means of pitfalls lightly covered—which the animals are too terrified to notice. For all sorts of deer under ordinary circumstances will detect, apparently by smell, the most carefully covered and concealed pitfall; their noses being as good as those of bloodhounds. The same is true of wolves and coyotes—many of which are captured during these fire hunts.

This method of killing game is greatly to be deprecated, for thousands of birds, young, and breeding animals, are destroyed in the flames. I had ocular proof on several occasions, that birds, either partially paralysed with fear, or unwilling to forsake their young, will turn back into the smoke and perish. The waste, too, is very great, for many animals are destroyed which are out of condition and worthless for either food or their pelts—creatures which no hunter would slay deliberately. The excitement of all engaged in these burnings is so great that nobody pauses to think of the mischief he is doing, but each man being desirous of killing all and everything he can. Professional trappers, however, rarely resort to this unsportsmanlike trick.

Mount Hood was visible from the Shoshone camp, being, as I supposed, about 30 or 40 miles distant, but I approached, during one of my rides across country, much nearer to it. It looks to be steeper than Mount Shasta, and there is a far greater area of its summit and sides covered with snow of dazzling whiteness. From most points in the plains below it appears to be of the usual conical form, but seen from a point about due east the top seemed to be a broken peak, with enormous vertical walls beneath; and still lower down was what looked like a huge recess half concealed in deep shadows. These appearances led me to conclude that the summit of Mount Hood, like those of Mounts Scott, Thielsen, and most of the other prominent peaks in this part of the Cascades, is a partially broken-down crater. In the early morning the snow-clad summit appeared of a pale rosy hue, rapidly fading to a cold hazy blue. During the day the snow appeared brilliantly white, and toward evening, first a fiery crimson, changing to a copper red, and, finally, a dull, deep crimson. Even from a distance the mountain is a grand sight, and I regretted that I could not go out of my way to make a closer examination of it. On the north side, near the base, is a prominent knob or shoulder, and there are several high peaks to south of it. It looks to be about the same height as Shasta; but the elevation above sea-level is variously given at between 11,222 and 11,984 feet.

On the prairies and low hills near our camp we found many huge hares, far larger than the European species, and also far inferior to them in flavour. The flesh has a peculiar bitter taste, which is most unpleasant. Mosquitoes or gnats were a great plague, and the ground was covered with a kind of kittydad, or locust, which greatly annoyed the tethered horses. In some parts of the foot-hills the ground was honeycombed by a species of cricket, and the chirping of these insects at night-time was an extraordinary sound, convincing us that their numbers might be counted by millions. Snakes were also plentiful, including a species of rattle-snake; the latter being seen only two or three times. All the waters, pools, marshes, lakes, and rivers alike, swarmed with frogs, or toads, as the people of the country call them. A frog of large size is called the "bull-frog," but it seemed to me to be a distinct species from the bull-frog of which I had seen so much in the lake region of the East.

A small owl frequented the hills in some numbers, preying on the crickets and locusts, and was sometimes seen on the plains; but as this owl did not appear until dusk it was difficult to study its habits, my hands also being pretty full with one business or another. Other owls were seen here, including the long-horned owl, screech-owl (apparently a local variety of *Megascops asio*), and the common prairie, or burrowing owl. The latter was found in large colonies after we had crossed the River Deschutes; and it is so widely spread, being found on nearly all the great plains of both Continents, that it may most emphatically be termed *the* American owl. The most extraordinary thing about it is that it is the same bird everywhere, and does not form local varieties, as most animals do which occupy widely separate areas of country.

I do not accept the theories of professional naturalists, having first-hand proof that many of the most widely accepted of their doctrines are of no real value; and I am satisfied that animals occupy the habitats to which they were originally appointed by their Creator. But it may not be out of place to ask the advocates of animal emigration, how it happens that such creatures as burrowing owls (which have but the poorest power of flight), and rattle-snakes, and a thousand and one other creatures with no particular powers of locomotion, have not found the Rockies, to say nothing of the mountains of Central America, and such rivers as the Mississippi and Amazons, an insuperable barrier to their wanderings? Mountains and rivers and arms of the sea do sometimes seem to mark the limits of species; but a careful examination of all the circumstances of locality and habit will almost invariably show that there are better reasons for the limitation of local habitats.

In this neighbourhood we found a number of hot-water fountains, one or two of such great heat that we could not bear the hands to be immersed in them for longer than a few seconds. All those of which we tested the waters were strongly flavoured with saline, or alkaline, matter. They issued forth from under rocks, generally forming tiny pools (I could stand astride that which contained the hottest water) of some depth, 6 to 12 feet, which ran over in little runnels, buried in herbage, and were soon lost on the level ground below.

One of our Indian friends undertook to guide us to a ford over the Deschutes where the waggon could cross; and we, retracing our way a considerable distance south, passed over the river near Bloody Rock, a small butte where an Indian massacre occurred many years ago. There was over 6 feet of water on this ford, and we sustained some damage to goods by wet, and were in great danger of having the waggon swept bodily away, for the current was the fiercest we had seen in any of the big rivers. The waggon was only kept from turning over by a party of the Indians straining at the bearing ropes we had taken the precaution to fasten to it. During the next three days we had a troublesome time, searching for passages across several creeks, and over a succession of marshes; but at length found ourselves on a wide plain, flat in some places, undulating in others, and destitute of trees and bushes except here and there in gulches and hollows; but thickly clothed with grass, herbage, and plants of small-sized shrubby growth. The grasses, tall and thick-stemmed, seemed similar to those covering the ~~Eastern~~ prairies; so it appears that the Rocky Mountains are no barrier to vegetable emigration; and we had many other proofs of this later on.

Small herds of the white-tailed deer were now almost daily seen, but they were very shy, and a supply of venison-meat was only obtained with difficulty. I spent a considerable portion of the day riding far and wide of the waggon in hopes of getting a shot at some of these deer. Where deer have not been much persecuted a waggon, or even a horseman, to the windward of them, is generally an object of curiosity, and the herd will approach to survey the unusual sight, giving the traveller an opportunity of an easy shot. Their shyness here seemed to indicate that they had had much experience of miners' and ranchmen's waggons, and had grown wary.

After repeated disappointments and much loss of time, I succeeded in approaching within 400 yards of a herd of white-tails, and fearing another failure if I attempted a nearer approach, tried a long shot from an old-fashioned Enfield rifle. It was a hit; but the wounded animal made off across the prairie, and

I followed the blood-trail for about a dozen miles before I came up with it lying stretched on its side, it having bled to death.

By that time it was within an hour of nightfall, and the waggon was out of sight, so I flayed the deer on the open prairie as best I could; made a fire of such small stuff as I could find, and having succeeded in broiling a venison steak, lay on the ground all night with the hobbled horse quietly browsing close at hand. There being no wood to keep the fire in, it soon went out; and the scent of blood from the dead deer brought several animal visitors round the spot, which I judged from the sound of an occasional snarl to be wolves. I rose several times and relit the fire to frighten these creatures to a safe distance away; but it would not burn for longer than a few minutes at a time; and now and then I fired at the dim shadows which could be seen hovering round my resting-place, and when daylight returned found a fine wolf lying dead a few yards off. Its pelt was almost entirely of a fine glossy black colour. These abnormally coloured wolves, as well as black pumas, and other animals, are not uncommonly found in the Western States, much more frequently than in the eastern part of the country.

I had ridden so far out of my way the previous day that I did not find the tracks, nor come up with, the waggon after a night's absence, until afternoon. The men were much disturbed by my long delay, fearing that I had fallen a victim to prowling Indians. During my absence they had succeeded in shooting two prongbuck which crossed the track of the waggon. We had seen these animals in California as well as on the prairies of this State; but this was the first occasion on which we had succeeded in shooting any of them.

They are handsome little animals of the deer or antelope kind; it is impossible, in my opinion, to decidedly say which, though they are almost invariably called "antelopes" by the hunters. Hunters' nomenclature, however, is of no value. They resemble both classes of animal, but I think they come nearer to deer than antelopes. The body is deer-shaped, and they shed their horns annually; and those horns, in spite of peculiarity of form, come nearer in shape to those of deer than antelopes.

The marking of the prongbuck is as remarkable as the shape of its horns. It is of a bright chestnut colour on back, neck, shoulders, and thighs. The belly, flanks, and legs below the knees are white, the line of demarcation between the two colours on the flanks being very sharply drawn. There is a large patch of white on the rump, including the lower part of the back, and the tail also is white, and there is lightish colour about the face. Two semicircular patches on the throat are of a light yellow or dun colour. The horns are flattish in shape, upright, with a small notch or fork, half-way up projecting forwards, and terminal hooks at the tip bending backwards. In size the prongbuck may be a trifle larger than the European roebuck, standing about 30 to 34 or 35 inches, and weighing perhaps eighty or ninety pounds; but I cannot find that I have any precise weights recorded.

In the good old days it is said that prongbuck, deer, and wipiti were seen in these regions in herds numbering one, two, or three thousand. At this time, in the wilder parts of Oregon, we saw prongbucks in herds of forty to sixty and, occasionally, about a hundred; but further West I have seen larger herds, and wipiti in bands exceeding a thousand in number. How numerous they may be at this present moment I do not know from personal knowledge; but I hear that even small herds of a dozen or twenty individuals are found with difficulty. The National Parks and timber Reservations are doing much good by serving as places of refuge to the persecuted animals.

The plain we were now crossing was much broken by small isolated ranges of mountains—"buttes," as they are locally called—and there was water in abundance. Not a day passed but we had to ford several fairly large streams, besides many brooks. It could scarcely be called a wilderness, for there were many signs of our fellow-men observable here and there, and a sprinkling of ranches and farms, one or two of which served as convenient halting-places for us. We also met a party of trappers preparing to make their camp for the season about to commence. There are said to be not so many of these men in Oregon now as formerly. Previously to the United States clutching the land, and ousting our Fur Company people, the country swarmed with trappers. That the majority of these people have turned their hands to other industries is certainly not to be deplored.

I joined my camp to that of the party referred to above, for mutual society and benefit during the two or three weeks it was my intention to devote to exploring the Blue Mountains, during which time the waggon was moved but seldom, remaining generally as a central point to which I could return to refresh every two or three days.

The Blue Mountains is the centre of perhaps the most charming district of Oregon, and one which is certain, in a few years, to be thickly peopled, and I am puzzled, on account of limited space, to decide which beauties to describe and which to unavoidably pass over. Before reaching the Blue Mountains we had crossed a dozen rivers of large size, all of which flowed through delightful surroundings and an evidently exceedingly rich country. At one farm, devoted to the growing of fruit, thousands of trees were literally bowing down under their loads of apples, pears, and plums—and doubtless others were in an equally prosperous condition.

The characteristics of the Blue Mountains, so far as I had the opportunity of studying them, seemed to consist in a great number of short valleys running towards a central nucleus of rock. The contour of the mountains was broken, craggy, sublime in a high degree; but I here missed the high peaks which are such a marked feature of the Cascades. I put the average height of the range at 3000 to 4000 feet above the surrounding country. According to information gleaned in the State, the 6000 or 7000 above sea-level of the maps was obtained by barometric measurements, so my estimate is probably very nearly correct.

These mountains are much better wooded than the Cascades; or, at any rate, there is not such a display of bare rock above the forest-clad portions of the range. Unfortunately, there are a great number of streams which are admirably suited to floating logs down to the Columbia and the neighbouring country. As a consequence there was already at this early period (more than thirty years ago) a large and most destructive felling of timber going on. The method of operation seemed to be to cut down every tree in a district, as it was come to by the lumber-men. There was no replanting to replace the loss; no sparing of small, young, or comparatively worthless timber; all was swallowed up by the greedy maw of the money-grubber. Nature, by-and-by, will take a sharp revenge for this wicked waste; and really one cannot suppress the feeling that it will be a just punishment on the people of the land, who ought to consider the rights of future generations, to say nothing of those of the world at large, who have an interest in the preservation of the beauties of this lovely earth which are disappearing far too fast, and for no other purpose, that can be seen, than that the number of the rich shall be increased; and, as a consequence, effeminacy encouraged.

Among the trees not previously noticed I was surprised to find sugar-maples in these mountains, having previously believed that tree to be confined to the North-Eastern States. There were not many here; a few scattered in certain of the Eastern valleys was all I saw. The other trees recognised were such as generally inhabit the Western ranges. They grow of large size, and thickly clothe the valleys and mountain sides. Some of the valleys, though scarcely remarkable as cañons in this land of wondrous cañons, are exceeding deep, with steep sides overhung by giant crags, which seem so precariously attached to the mountains that one looks on them with constrained breathing, more than half expecting to see them break away and go crashing into the gulch below. It is one of the grandest experiences of this district to stand on one of these crags and survey the sublime scene below and around. One looks right down on the tree-tops 600 or 700 feet below, and watches the bellowing torrent rush from under the very rock on which he is standing, and dash in mad haste a mile along its narrow channel before it is lost to view amid the entangled trees of the forest, which frequently meet overhead, and form a tunnel for its waters; while a pair of large eagles, which he has angered by taking up a position within a few feet of their eyrie, glide and flop just over his head, now and again uttering a harsh cry of threatening import. Such a scene lives for life in the retrospective eye; and if it has cost him days of time and money unreckoned to enjoy such an hour of enchantment, what of that? Surely it is as defensible to spend time and money that one may drink in the beauties of God's pictures as it is to give thousands for a painted canvas. One would that he could live for ever in the enjoyment of such scenes.

Much which was most charming to look on must be passed by without description, partly because of its similarity to other scenes already described, as cascades and forests, and partly because the singular monolithic rocks were inferior in interest to, though resembling, those which must be described further on. There is a strong likeness between many of the details of the whole of the mountain ranges of this district from the Rockies to the Coast Range, and I have to cull my descriptions with some care to avoid what would read like repetitions.

The game which has been so much persecuted in the plains seems to have sought a refuge in the Blue Mountains in large quantities. Even in the twenty days we spent here our friends, the trappers, had already collected the nucleus of a very good bale of pelts. I myself shot two bears—a grizzly and a black—a couple of wipiti, and a number of smaller animals, and could have obtained many more; but from first setting foot in America, I made it a rule to take the life of no animal, wantonly or wastefully.

For the information of those who are interested in the distribution of animals, it may be remarked that no State of the West has a greater variety of animal life than Oregon, and nearly all the kinds of game, and many of the birds of the Eastern side, are found here, and would be abundant in numbers if they were afforded a fair chance of repairing the losses inflicted upon them by loafers and pot-shooters; for it is these gentry who are guilty of doing the most mischief. On every farm and ranch there are a number of men who, at some season of the year, have idle time on their hands; and these idlers are much given to organising "sporting" parties—the *sport* consisting in killing everything met with which is considered to be worth a charge of powder. As these parties go out and camp in the forests and mountains for weeks or a month at a time, and at any season of the year they find it convenient to devote to the pastime, the slaughter is truly dreadful from a humane person's point of view. The professional trappers have "their knives in" these "sports" as they tersely describe themselves; and there are instances on record of condign and well-deserved punishment having been inflicted on some of these slayers of out-of-condition and breeding animals; and most, if not all, the States at this present day have stringent game laws, which are generally "stringent" only on paper, and in too many cases the mischief is done and irreparable, *e.g.* the bison in all, and the wipiti and moose in many, districts, where a few years ago they abounded.

One of the trappers had hunted (shooting, or taking game in any way, is "hunting" in America) in West and North-East Oregon for twenty years. He informed me that down to '65 or '66 his party usually took from one hundred to four hundred beavers in a season in the Blue Mountains; but during the last few years they never took more than one hundred; and sometimes only a score or so. The "lodges" or dams of the animals are mostly in the smaller valleys and ravines, but some are out on the open plains; but always, of course, in well-timbered spots. We saw many old beaver-meadows; but there was only one occupied within a dozen miles of the camp, and from this the men took six beavers while we were with them.

On some low hills at the foot of the range I shot a remarkably small fox, which was afterwards identified from the pelt as *Canis velox*. It was only 30 inches in extreme length, of which 8 were taken up by the tail. It must be a scarce animal here, as none of my trapper friends had seen such a fox in these mountains before.

The musquash, here called simply the musk-rat, was abundant in numbers, as proved by the frequency with which it was trapped, though I seldom saw it in my rambles, and squirrels, too, were numerous, including the chipmunk, though I never heard it called a chipmunk in Oregon or California. Ground-squirrel is its denomination in this district. It is a mistake to suppose that it never ascends trees; it does so both here and on the other side of the Continent; and for the purpose of searching for food, too; but I have never seen it in lofty trees. In the East it habitually, in some districts at least, climbs hickory trees after the nuts, of which it is very fond; and if it is desired to trap these little animals (which are very destructive in cultivated tracts) there is no better bait for the gins than hickory nuts.

I have not previously mentioned the tree-porcupine, though it has been several times seen, and figured more than once on my rough dining-table; for I share with my Indian brother a liking for porcupine meat. I could not perceive any difference between this animal and the "Canadian" porcupine, which really is found in nearly every State and Province—American and British; but it differs very materially from the tree-porcupine which I have seen in the south of New Mexico, and in some parts of Texas, and from a similar species in the forests of South America.

The Canadian, or more properly, North American species, inhabits all kinds of forest country on both plains and mountain ranges to an elevation of at least 6000 feet above sea-level; preferring, it would seem, a broken rocky kind of ground. For it is found on the ground quite as frequently as in trees; and undoubtedly finds a great portion of its food there. It is my opinion, after carefully watching the animal, that, like rabbits, hares, and other porcupines, it rarely drinks; and I am sure that it has an extreme dislike of water, and never voluntarily enters it. There are two opinions about that; for my assertions in a separate paper about the swimming powers of certain American animals were flatly contradicted by a gentleman, a stranger to me, who was good enough to address me on a postcard. It is clearly the opinion of a school of naturalists that *all* animals can swim; and men of position in the scientific world have made assertions which are quite at variance with my actual experience; as for example, that of Professor Newton, who says that, "contrary to what is often asserted, monkeys can swim well." I have seen South American spider monkeys, accidentally immersed, drown. I have also seen squirrels and mice drown. These animals do not sink on immersion; they die as they swim, the bodies continuing to float after death. The monkeys, falling from trees in desperate attempts to escape from pursuing enemies in three or four instances witnessed by me, were very helpless in the water, but struggled for the bank. In only one instance did the monkey succeed in reaching it.

Travellers tell tales certainly; and there has never been a traveller yet who has not been charged with twanging his bow too strongly. But, I ask, is the story of Du Chaillu's "monkey-bridge" to be credited? If so, it is beyond dispute that the lively Frenchman is to be classed with Professor Newton's contra-asserts; for monkeys which could swim would never have been at the trouble to form such a flying bridge as he describes.

About 14 miles from our camp there was a ranch to which I sometimes rode for the purpose of obtaining eggs, butter, milk, etc.—14 miles being a mere neighbourly visiting distance in a back settlement; and so became acquainted with the proprietor's son, a fine enterprising youth of twenty years, who, being as fond of wild life and beautiful scenery as myself, proposed a joint visit to the Snake River. I required no repetition of the proposal, and the weather being still fine and warm, preparations were made for an immediate start.

A couple of days sufficed for the organisation of our little expedition. We were both well armed and well mounted, and we took but one man with us to lead a pack-horse. Two favourite dogs were also permitted to accompany the party; and so we started prepared to "rough it" to any extent for a fortnight, more or less.

To condense information as much as possible, and avoid returning to the same subject under the heading of other States, I will here give an account of all the previous and subsequent experience I had of this remarkable river.

Nearly all maps give the Snake the name of the Lewis as a sub-name, apparently because one of its upper forks is so called. I never heard this name applied to it by the people of the land; but it is quite as often called the Mad as the Snake River. The Mad was the first name bestowed upon it, and a better descriptive appellation cannot be found. In all written descriptions which I have seen it is stated that it takes its rise in a group of lakes in the Yellowstone National Park. This is not strictly correct. Immediately south of the Yellowstone Lake, and sloping to its very shores, is the group of mountains known as the Yellowstone Range, the highest point of which is Mount Sheridan, over 10,000 feet. Within the shadow of Sheridan, and at an elevation of about 7500 feet, is Heart Lake, which I estimate to be 4 miles long by 3 in the broadest part, but it is nearly cut in two by a projecting tongue of land. Within a few miles of Lake Heart there are several small ponds, or at most I may term them mountain tarns, from several of which the waters of the Yellowstone Lake are in full view. It is here that the Snake has its source. But all these tarns are fed by mountain springs, which run as foaming brooks for several miles before they form ponds or lakes; and it is very difficult to decide which is the actual source of the river—in fact, it has not been conclusively decided. My opinion is that the actual source is outside the bounds of the Park to the south, in the "Big Game" mountains of the trappers.

In any case the surroundings of the spring which ultimately widens into the Mad or Snake River are superbly beautiful, consisting of majestic rocks and grandly gloomy pine forests. The spring, in two jets of water, gushes out from beneath an overhanging mass of rock, which is thickly shaded by big pines, though the trees in the Yellowstone ranges are not nearly so gigantic as in the Oregon and Coast States districts generally. The springs at first form a tiny runnel across which a man can easily stride, but within a mile this runnel has increased into a rushing torrent which is a mass of foam and spray everywhere, beaten into mad confusion by the jagged rocks which crowd its bed. It soon begins to cut its way through a deep channel, though, at one point, after it has made a loop through the southern part of the Park, it runs through a marshy valley of some width, but yet with a fierce, rapid current. Neither here, or at any other part of its course, until it enters the State of Washington, do I know any spot where boat or canoe could live for a moment; and to those who know what desperate-looking rapids an Indian canoe will brave, this fact will give some notion of the impetuosity of the Snake torrents. Everywhere the current is churned white, and often beaten into a cloud of spray, by the force with which it hurls itself against the masses of rock which are sprinkled here and there in all parts of its upper and middle courses. The depth of the water it is impossible to even attempt to ascertain, for plummet cannot sink straight into it; but the eye tells plainly to the observer that its volume is very great. No doubt its strength would be of great value to the electric-plant-power proprietors; but it is delightful to perceive that here, at least, is a magnificent river which they will never be able to capture and degrade to sordid uses. Nor will its bosom ever be polluted with the dime excursionsteamer and its crowd of noisy rowdies, who come, not to see the beauties of Nature, but to shout ribald songs and kick up their heels at spots where the son of the wilds wishes to let his heart rise in worship to the Great Spirit.

Very early on its career the Snake forces its way through deep cañons, which, though varying in depth, occasionally rival those of the Colorado, the premier cañon-river of the earth, in this respect, and often excels them in gloomy grandeur; for the cañons of the Snake are sometimes much narrower than those of the Colorado with walls which, though 4000 to 5000 feet (*more than three-quarters of a mile*, be it noted) high, are so sheer in elevation that a stone can be dropped into the surging current below.

The Snake, though born in Wyoming, leaves it almost immediately and makes a big loop right across the State of Idaho. For the characteristics of the country through which it cuts its way, reference must be made to the chapter bearing that heading. All that may be said here is that the tableland which forms the desert and plains of Idaho is often full of huge rents or fissures. Over some of these one can step, or jump, or leap his horse; others are wide and of great depth, with water trickling at the bottom, which will, in course of time, no doubt, enlarge them to cañons, forming tributaries to the Snake. We see that such action has often already taken place; for all the side streams run at the bottom of deep cañons, which makes it impossible to travel far parallel with the main stream.

Rapids are very frequent in the course of the Snake; but these are not often of sufficient drop to merit the term "falls," though quite fierce enough to make canoe navigation an utter impossibility. A large pine-log, 90 feet long, was being rushed down the current. It was caught in a huge eddy and whirled round and round until it was jammed between two rocks in the bed of the river. For a moment it resisted and the waters surged over it; then it gave way with a loud noise which sounded sharply above the roar of the torrent, and the immense buttress, with the shaggy roots still adhering, and looking like the shock head of some gigantic water-demon, flew perpendicularly up in the air, turning a complete somersault ere it was buried in a cloud of foam. This log probably weighed 8 or 9 tons; the power of the water may, therefore, be imagined.

The first cataract which can really be termed a fall is a short distance below the junction of the Portneuf fork. This is the American Fall. As if desirous of playing a grim joke, the river, a few miles above this point, suddenly ceases its furious foaming and frothing, and glides on an almost silent, glassy green current. I remember that I shuddered the first time my eyes rested on this gliding, irresistible, onrush of waters, there was such an appearance of cruel cunning, of fell determination to perform some dreadful purpose, in the motion of them. The actual fall is only 30 feet, over a ledge of basalt; but it is performed with such a singular, though terrible, rush, that the sight of it is said to have caused the name Mad River to be given to the stream by the first discoverers.

It is about a hundred miles by the winding of the river to the next great fall—though there are many rapids in the intervening space. This is the renowned Shoshone Fall, more often called, locally, "The Niagara of the West," a name conferred upon it, I believe, by Captain Fremont, U.S.G.S. Not far above are the Twin Falls, which I need not stay to describe. The river then again forms a broad sheet of rapidly gliding water of a dark green colour with white-crested ripples, which are almost waves in size. With a deep, majestic roar, quite equal in volume to that of the Canadian Niagara, the mighty stream glides, rather than falls, into a terrible cauldron 200 feet deep and 700 wide. The fall is semi-lunar in form, in fact bears a remarkable likeness to the celebrated horse-shoe fall, which justifies its being named "The Western Niagara." The water falls, especially when the snows are melting in summer and the river is full, with wall-like straightness, and with a noise that is deafening; and is, of course, heard from a distance of many miles. A cloud of mist, about half a mile high, hangs immediately above the fall; and this in high winds and storms, oscillates and spreads up the cañon with most weird effect.

There is probably an enormous chasm beneath the falls; for the water gives the spectator a sense of its going down, down, to an enormous depth; and not far below the current resumes its cruel-looking, glassy, gliding motion. On the whole, the Shoshone runs Niagara very close for the palm of wondrous majesty.

The country and the gorge at Shoshone are extremely desolate-looking, which adds greatly to the weirdness of the scene. Great buttresses of rock project from the sides of the cañon going down from the plain above to the water; and the rocks are in places almost vertical, with only a few half-withered pines clinging to them here and there. Trees and bushes are very few, even on the upper rocks and plains, and the latter look to be quite flat, and are much fissured, with quantities of loose sand on the surface. In high winds this sand rises, and causes much inconvenience, not to say serious trouble, to the traveller.

Pinnacle rocks are not so numerous hereabout as on other parts of the river's course; but just above the falls there is a remarkable pointed rock in mid-stream, past which the current rushes without extra commotion. The height of this column can only be conjectured; it seems to be about 200 feet, and it will probably in time be eroded by the water, and come down with a crash. This seems to have been the fate of many similar columns lower down the river, while others of various fantastic shapes are still standing both in the bed of the river and on the sides of the cañon.

At that part of the river struck by young Warren and myself, the cañon was of enormous depth, certainly several thousand feet, and a mile or two wide, sometimes more, often considerably less, with sides so steep that it would have been madness to have attempted to have climbed down them. We did not see six places where such a descent would be possible even with ropes and other mountaineering appliances. In this respect the cañon of the Mad, or Snake, river is far more difficult of access than most parts of that of the Colorado. Nor was there any spot in the whole range of this part of the river where it would be possible for man or beast to cross under any circumstances whatever.

The bed of the stream was full of rocks; some slender columns much exceeding 100 feet in height, or so it seemed to us, but looking down upon them from so vast a height everything appeared dwarfed, by comparison, in the huge crevasses, and they might have been much more. Those topographers who delight in finding weird resemblances to living objects in the still works of Nature, a class very common in America, would find great joy of heart here. For the resemblance of some of the rocks to distorted human forms was occasionally quite startling. One mass looked like a woman stretching an arm upward in an attitude of entreaty; another, but for its enormous size, might well have been mistaken for a petrified Indian; equally lifelike was a sitting dog, which could not have been less than 80 feet high; while a "spread-eagle" was so astonishingly natural as to elicit a burst of loud admiration from friend Warren who was a pan-American.

One of the most noticeable differences between the cañons of the Snake and those of the Colorado is the sombre colouration of the former, while those of the latter are tinted with a truly wonderful display of colours.

CHAPTER III

WASHINGTON

In company with Warren I followed the course of the Snake from about the junction of the Powder Creek to the point where it joins the Columbia in Washington territory; and I have seldom had a harder or more adventurous ride. The ground is intersected by numerous creeks, some of them large, with fiercely roaring currents, which it is impossible to cross; and all running at the bottom of deep cañons, varying in depth from 1000 to 2000 feet. These had to be headed at the cost sometimes of going 100 miles out of the direct course, for no horseman could possibly descend into them.

Within a few miles of the frontiers of the two States a great change comes over the characteristics of the Snake. The stream quiets down very much so that boats and canoes can navigate it, though every here and there one meets with a deep and dangerous rapid—rapids which the Indians and others shoot without hesitation in spite of the great risk. Small steamers, and boats of larger size, however, in skilful hands, can negotiate these rapids in safety.

The river still runs at the bottom of a pretty deep cañon; but to those who have seen the upper reaches it has lost its picturesqueness, and there is now no difficulty in reaching the actual bank of the stream; indeed there was already a baby "city" or two on its very margin—cities that would, at this moment, be terrible outraged by comparison with babyhoodism. The general appearance of the banks, which are retired, as a rule, from 1 to 5 miles on either side, is that of bluffs rather than the walls of a cañon, and trees are very sparsely scattered about them; but the fell feller has had much to do with producing that scarcity.

The waggon had been sent on weeks before my arrival, under charge of an assistant, with instructions to make the passage of the Columbia at Hunt's Ferry, a place not far from the meeting of the Snake with that river, and now the site of a great railway junction. The description of Washington cannot be given as the narrative of a single journey, and must be confined almost entirely to sketches of the Puget Sound region, and the course of the Columbia, as the two most interesting districts in the State.

To begin with the latter. Except in the lower or "navigable" part of the stream, the Columbia, as far as it is known to me, is a river of quick current, with rapids at frequent intervals on its course. These rapids are frequently dignified with the name of falls; but few of them even remotely deserve such an appellation. I think that on an average there is a rapid to every 10 miles of the river within the bounds of the State. Even in the lower reaches these rapids are frequent, but in some way or other the river-boats are warped, or tugged, or full steam a-headed, up them as far as the junction of the Mad or Snake. Higher up the stream the canoe of the Indian, and of the trapper, glide between cascade and cascade, making frequent portages.

Kettle Falls are said to be the largest on the river; as they certainly are on that part of it which is within United States territory; but they are not very striking to the eye. There are some boiling rapids just above, and the actual falls drop perhaps 20 feet. This is on one of the straightest reaches of the river I know. Thirty miles lower down it makes a big bend to the right, with a tortuous course; and there are some very fierce rapids which are quite impassable for craft of any kind.

The country through which this part of the Columbia winds its way is moderately mountainous—in some parts perhaps 3000 feet above the bed of the river; the stream itself being in a cañon 1000 feet deep. But by cañon here no such gully as those of the Snake and the Colorado is to be understood. It is rather a narrow valley clothed with grand old forests, often coming down so close to the brink of the stream that the water washes the straggling roots. The distance from Kettle Falls to Batty's Ferry is about a hundred and fifty miles following the river; and in that distance I have noted the following rapids—all of which are either quite impassable or exceedingly dangerous. No doubt the list is dry reading; but it gives an excellent idea of the nature of the current. The letter *i* means that the rapid was impassable at the time of my visit: *d*, indicates that the passage would be highly dangerous. A daring canoeist might venture to shoot the others. Grand Rapids (*i*); One Mile Rapids, Three Mile Rapids, Bar Rapids, Mitre Rapids, Spokane Rapids, Raitana Rapids (*d*); Spring Rapids, Makin Rapids (*i*); Monaghan's Rapids (*d*); Kalichen Falls (*i*); Whirlpool Rapids (*i*); Nespilem Rapids (*d*); Foster Creek Rapids (*i*); Old Pot Boiler Rapids; Catamount Rapids; and Downings Rapids. Of course these can be avoided by making portages;

but the nature of the country is such that the labour of doing this would be well-nigh insupportable; and the loss of time such that nobody would ever be likely to resort to it. It is therefore pretty certain that the Upper Columbia will never be a navigable stream.

The Spokane Rapids must not be confounded with the splendid falls of the Spokane Creek, which make a single leap of 160 feet. The Creek is a tributary of the Columbia, which it joins through a narrow and gloomy cañon 800 or 900 feet deep.

There is annually a remarkable series of scenes at these falls and rapids when the Indians assemble to take the salmon as they ascend the river to the spawning grounds. This is the first reference made to the fish in these pages; but really this is the realm, *par excellence*, of the salmon; and to say that I found salmon in Oregon and the Columbia would be similar to saying that I found sparrows in London. It would be supererogatory information. There are several varieties of both salmon and trout in almost every river and brook of the Coast States; even in the roaring swirling waters of the Snake; and, incredible as it may seem, I state from actual observation that these extraordinary fish have the power to leap sheer up an 8 or 10 feet fall—an absolute fall, not a rapid. Many fail in the attempt; as many more go up, glinting in the eye of the spectator like a flash of silver lightning; a sight even more beautiful than it is marvellous. At some of the lower falls, the salmon go up in crowds—a veritable flight of fish meteors; gleaming and sparkling in the clear sunlight of these regions with a radiance which it would be a vain task to attempt to convey to the mind of people used only to the horrible gloom (so it seems to me) of the cities of my native land.

As to the numbers of the fish, they are incalculable; but they can be seen ascending in the stream in a dense serried mass, so closely packed that it is certain a stone flung among them must hit one. What the result would be of attempting to net such a shoal I cannot say, having never witnessed such an attempt. It seems certain that the net would be burst asunder and ripped to pieces.

The Indian does not net the fish, but spears them, as they leap, with unerring skill. It is sometimes said that it is the fish which fail in the leap and fall back, that the Indians secure. This is a mistake. The skilled spearman knows that it is the best, strongest, and largest fish which successfully perform the desperate leap; and quick as they are they are not quicker than the eye of the ruddy son of the wild. He rarely fails to transfix his prey; and with a lordly air flinks the wriggling victim from the cruel barb into the lap of his squatting attendant squaw; who without a moment's delay seizes the still living fish, runs her sharp blade down its silver belly, tears out the entrails and backbone, and spreads the flattened body on the clean rocks to dry. This drying is done by the combined action of the sun and wind, no salt being used. In a word, the salmon are cured in the same manner as strips of buffalo-meat used to be on the Eastern side of the Rockies.

There is an unpleasant side to the scene. The garbage of thousands of salmon lying about on the rocks in the neighbourhood of the rapids is a loathsome sight; besides which a great many of the fish speared are rejected by the fastidious Indian, who will have none but the best. I never heard a hint of salmon disease here; but some of the fish are in better condition than others. "Him flappy, brudder," said one of these red gentlemen, as he rejected a far finer fish than some I have seen marked in London shops at three shillings a pound.

At night, when all is quiet, there come various creatures to prey on the offal. Coyotes, foxes, wolves, and birds of prey, animals, which in general do not feed on such food, have been detected by me in the act of devouring the rejected, and sometimes half putrid, fish. Susliks also have been seen to feed on this filth, and it is necessary to tie up the dogs to prevent their devouring it greedily, as it induces a horrible disease of their hides, which seems to be a kind of leprosy.

The fish are so abundant, that a hundred times a greater number than those who actually fish might supply themselves without perceptibly diminishing the stock in the river, yet these Indian fishermen often quarrel desperately among themselves, especially if they belong to different tribes; and the men at Fort Spokane informed me that they often have to interfere to preserve order. The fishing, or spearing, only takes place where there are rapids, or cascades, which the salmon must leap. I have never seen these Indians fishing for them with hook or net. Consequently it is probably more for want of room than anything else that the savages quarrel. At any rate, they are as ready as Irishmen to come to blows, and as they always use their weapons, it is no uncommon thing for a few lives to be lost.

Opposite Batty's Ferry is the bottom end of Lake Chelan, a body of water of remarkable outline. It is some 40 miles long, but only 2 or 3 broad, and in its sinuous course resembles the form of a snake when in the act of wriggling along the ground. It is a very beautiful lake occupying a narrow valley at the foot of a rocky range 4000 or 5000 feet high, the crags and pine clusters of which are reflected on its serene bosom as sharply as the mountains and forests on the Mirror Lake of the Yosemite. On the north side there is a bluff many hundred feet high: so that the lake is sheltered from all points.

Continuing down the river on the left bank, I found travelling for a horseman, on the whole, fairly good, though I was often compelled to make wide detours inland, the country being of a desert nature hereabouts. There is very little water on the plain, the few streams being very small and losing themselves in sinks after courses of 5 or 6 to 20 miles. There is a chain of long narrow lakes and pools across the middle of this tract of desert; but the water in most of these, and in the streams, was strongly impregnated with soda and alkaline matter, and could not be drunk. In many cases it stank most offensively. No matter how hardly pressed a traveller may be, he should never attempt to assuage his thirst by taking so much as a drop of this water into his mouth. It will not give him more than a moment's relief, and his subsequent sufferings will be such as to almost certainly end in insanity and death. The best plan to find water is to ride for the head of one of the small streams. Many of these have their origin in rock-springs, and where the water bursts forth it is usually sweet and pure, the alkaline minerals being in the soil which forms the bed of the stream. Another good plan is to watch the birds, especially hawks and eagles, which are great drinkers. Some of these are sure to be seen wending their way towards a spring at evening time as they always drink before going to roost.

Referring to birds of prey reminds me that I have not mentioned that the white-headed eagle is very common in all the States so far treated of, especially in Oregon and here. This is the bird which is accused of robbing the osprey, which it undoubtedly does in some parts of its habitat; but it robs not only ospreys, but any creature which it is strong enough to master. While in this neighbourhood I saw a pair of them rob a coyote of a hare; and repeatedly eagles of this species were seen to pounce upon salmon in the river. I do not know if this is a common habit of the bird in other parts of the Continent; but there is no doubt of its being so here. Moreover, it does not disdain to feed on the rejected fish and entrails left by the Indians on the rocks. I saw no ospreys in Washington; nor do they seem to be common in any part of the Coast States visited by me.

There seem to be ledges, or bars of flat rock of basaltic formation at several spots on the upper Columbia, and in many places the bed is full of rocks standing well out of the water. In this characteristic, and the fantastic shapes of many of them, the Columbia resembles the Snake. The plains, too, are dotted, not exactly with erratic blocks as understood by the geologist, but with isolated buttes, columnar masses, and what among the sparse population of the neighbourhood, are called church spires, cathedral rocks and organ rocks. Many of these are similar in appearance to the "devil's chimneys" of my native land. Hundreds of places in all parts of North America bear such names as I have quoted, and there are also a few "chimney pots" and "devil's bowls"; but these terms are not in such favour for curious natural formations as the first-named.

Soon after passing Rocky Rapids I obtained my first view of Mount Rainier, a snow-enveloped dome, the highest in the Coast States. It must have been at least 80 miles distant on a bee-line. From this spot downward, it is visible at nearly every point on the Columbia where the view is not impeded by mountains in the immediate neighbourhood of the spectator; indeed it is visible from such a distance all round that it seems to be in view of the inhabitants of nearly half the State. I have purposely avoided terming Rainier *snow-capped*, because this description would not accurately describe its appearance. Though the autumn time of the year was now with us, and the thaws of summer must have been going on for several months, yet nearly the whole of that part of the mountain in sight, which was about the upper half, was covered with snow of the purest whiteness. There is much sameness of outline in all the peaks hitherto noticed. Mount Hood is perhaps the most striking of them all.

I like to get away from the neighbourhood of bustling towns and industrial "blocks," and describe the very wildest parts of the land I can find; but in the case of the Columbia I am compelled to admit that some of the most interesting bits of scenery are on the lowest reaches—in the vicinity of the baby cities referred to above. A large stretch of the intermediate course, where the river runs through one of the most desert-like tracts to be found in North America, is destitute of the picturesque beauty bestowed on scenery by the presence of trees. For miles at a stretch we scarcely met with so much as a bush. The rocks of the cañon, and the plain near the river, was covered with a short withered-looking grass, which is, however, very nutritious, and will be found excellent fodder for the traveller's horse. Where we were compelled to make detours into the plain we found a different kind of grass, tall and growing in great tufts. This also is nourishing to cattle; and the ranchmen speak most highly of its fattening qualities. So that even these desolate-looking plains, or plateaus (as they really are), are very far from being deserts. The want of good water is the worst that can be recorded of them.

Game was abundant on the plain at this time, though shy, the result, no doubt, of much persecution. I saw larger herds of deer and wipiti in this district than in any other part of the three Coast States, but down to this time did not meet with a single moose. Often I found the tracks of grizzly bears, but did not see the bears themselves; and my object not being "sport," I did not go out of my way to find them. Bruin, in my experience, is never anxious to show himself; and he is even less willing to become an aggressor. There is no more real danger from the wild creatures of the American wilderness than there is from the traffic of a busy city. Accidents happen occasionally—that is all. And I should like to have Bruin's opinion of *danger*. Poor fellow! Between the poison of the ranchman and the Winchester of the trapper he has not a very comfortable outlook for the future.

About midway between Hunt's Ferry and the Devil's Bend I found so many traces of wolves and coyotes that my curiosity was excited, and I followed up the tracks, and about 5 miles inland found an Indian cemetery, on the top of a rock from whence it was visible for several miles around. The bodies were exposed on platforms elevated on four poles about a dozen feet above the ground. Skulls and bones, with a fluttering rag or two, could be seen on most of these perches; but the place must have been recently used, judging by the fearful stench, which had, no doubt, attracted the wolves.

These hungry brutes had left the marks of their teeth on the poles; and had also attempted to dig them up; but they had been too firmly planted. A few bones, blown down by the high winds, had been well gnawed; but I think the bodies rarely fell a prey to wild beasts while they were fresh.

There are several other cemeteries of this description at various spots on the Columbia, and similar ones in many places in other parts of the United States.

I saw nothing of wild animals except innumerable footmarks of the wolves; and, indeed, it is but seldom that these sly and cunning brutes are either seen or trapped. They scent man miles before he can get near them, and are off like a shot. The best way of getting them is to lie in wait near their haunts, taking care to be completely concealed in a position which cannot be approached from the leeward; and above all things to abstain from smoking. This last comfort should be eschewed while watching for any kind of big game. They have all long ago learned what the scent of the weed means.

Near this Devil's Bend (there is more than one on the river) I found some large fresh-water mussels clinging to the rocks; and a hawk was preying on them, breaking the shells by beating them on the stones, after the manner of the American robin with a snail. The hawk was a common rough-legged buzzard. On the lower reaches of the Columbia I several times saw the swallow-tailed kite, *Elanoides forficatus*. This bird was not met with in Oregon; but it was one of the commonest birds of prey in those parts of California we visited, its remarkable parti-coloured black and white plumage and deeply forked tail making it a very conspicuous object—quite unique among hawks. It is an exceedingly plucky bird too; for in the latter State it was seen squabbling with another hawk thrice its own size.

Here and there are rocks, sometimes coming close down to the water's edge, which have just the appearance of having been split through down to their bases, one part crumbling away or otherwise disappearing, and leaving a perpendicular cliff as a face to the remaining part. Some of the mountains, 1000 or 2000 feet high, have also a similar appearance; and it is possible to walk up the slope at the rear and stand on the very edge of the precipice. On one such rock I seemed to see precisely how this formation was brought about. Quite half of the mount had already disappeared, while just behind the cliff was a great crevasse; and it was impossible to look upon it without perceiving that the rains of each returning season must collect in the crack, and every year widen it until at a very near date another great slice of the rock would fall to the base of the cliff and crumble to dust. Rocks of this character are usually either quite bare of vegetation or have only a few scattered trees and a little herbage upon them.

One such rock is a noteworthy place. It is called Rooster Rock; and here much of the débris still lies at the foot of the cliff. Just under the rock is a block-house jealously preserved by the people of the land; for here the great American general, Sheridan, when a young subaltern, with a score or two of United States soldiers, had a fierce fight with the Indians who besieged him in the block-house, which is not loopholed in the ordinary way; but an entire log is left out, leaving a long lateral opening for the men to fire through. Several such block-houses are scattered through this district, and to most of them are attached stirring reminiscences of the early days of the State when Indian troubles were frequent, and led to many plucky fights against long odds.

The Dalles, generally pronounced Dales by the miners, is perhaps one of the most curious spots on the Columbia. The bed of the river is choked with great flat slabs of lava, and similar slabs lie scattered over the face of the country for many miles. There is nothing like this in any other part of the country that I have visited, but I suspect that some of the flat ledges on the upper part of the river, over which it forms rapids, may be of a like formation. "The Dalles" (the article is always used) is a town on the Oregon side of the river, devoted to the interests of the miners, who resort thither from all parts of both States, to purchase necessaries, and non-necessaries, and test how much bad drink can be put into the human frame without destroying it, and to try a great many other foolhardy experiments; and also to secure their gold, if they are not fools enough to lose it all.

The lower reaches of the river, down to the coast, were at this time thickly covered with splendid pine forests, in which the trees were quite equal in size to those of most other parts of the Cascade Range. I hear now, to my sorrow, that if I saw this country to-day I should not recognise it. I wonder how long Mount Rainier would remain in the State if it would fetch a dollar per cart-load!

Mount Rainier is visible throughout the Puget Sound district—at least wherever I went and ascended an elevation, great enough to give a view of the horizon, I saw its snowy majesty looking down upon the lovely scenes of this wondrous series of inland bays and fiords, as if to keep watch and ward over them; and, in my estimation, it is here that the finest and most impressive views of the giant mount are to be obtained—for a giant it is. There are plenty of higher mountains in America, to say nothing of what the rest of the earth can boast, but it is the decided isolation—the absolute standing alone in full majesty of its own mightiness—that forms the attraction of Rainier and his brothers and sisters—Shasta, Hood, St Helens, and a large family of others. One can walk right round Rainier, if his legs be good enough and his spirit brave, as he can walk round Shasta and Hood. They are no squatting giants perched upon the shoulders of other mounts. They stand boldly upright and alone, as champions should, and lose none of their glory by comparison with a host of more or less minor rivals. The eye rests on the huge forests of dark pine and cedar, then rises to the ethereal white of the mount which seems to be a thing of the skies—the contrast is glorious, and more than glorious—it is almost sacred by reason of the deep feelings of emotion it arouses in the soul; feelings I cannot endure to have interrupted by the silly chatter of a companion who *will* talk, and I move impatiently away to avoid the noisy voice of the mindless creature. Rainier, from Puget Sound, is a sight for the gods, and when one looks upon him he feels that he is in the presence of the gods. What it is that inspires one with an awe for this silent sentinel of the desert is unexplainable. It certainly is not extraordinary beauty of form, for, as I have already said, in that, Rainier does not much differ from other children of the family. What is it that suddenly fills the soul with silent veneration when a person perceives that the quiet, plain man, with whom he has been familiarly chatting, is a master-mind? The explanation is in the answer to that question. I had seen Rainier for so many days in succession, and from so many points in the desert, that he had grown quite familiar to me; it was not until I saw him from the lovely bays of Puget that I realised how great a noble of the land he is.

Puget Sound is really a series of inlets, the largest and most intricate in the world, having a shore-line of between 1500 and 1800 miles—much more than some of the largest European States. The so-called Sound runs inland in a due south direction for something over 100 miles, but the parallel and side inlets, many of which have never been explored if, indeed, visited, shoot off in all directions, giving many thousand miles of waterway, all of which lie in the heart of a dense forest, which comes right down to the shores—so close that the trees may be said to kiss the waters. Needless to say, much of this forest has already been destroyed, but enough remained (at the time of which I write) to justify the assertion that Puget Sound is buried in a forest—a forest which a section of the settlers seem disposed to treat rather as a curse than a blessing, for portions of it have been, from time to time, wantonly set on fire by these people, and many thousands of acres of the best timber in the land burnt.

Before the encroachment of the sea, Puget Sound must have been an intricate network of cañons with vertical sides, for the water right up to the shores of even the smallest bays and coves is from 200 to nearly 3000 feet deep. At most parts of it ships cannot anchor on account of the great depth, but instead lie moored to the trees on the shore; and the crews go to and from the ship across planks laid from the deck to the rocks. All the navies in the world could find shelter in this Sound, and still leave ample space unoccupied, and from a military point of view it is immeasurably the most important site, not only on the Western

Coast, but in the United States and the whole world. It is capable of being so fortified and defended that a very moderate naval and land force could defy dislodgment though all the nations of the earth combined against them.

The shores of all parts of the Sound are rocky, and rise with a steep slope to a considerable height. The ground within a few miles of the water cannot be called mountainous, but there are bold ridges of 800 or 900 feet in altitude; and the rocks are in many places arranged in wild and broken picturesqueness. Mount Olympus and six other peaks are in full view westward, but in the face of Rainier, attract but comparatively little notice. But it was this west shore of the sound which had the principal attraction in my eyes; for it is a but slightly explored region. On this side runs one of the longest arms of the Sound, Hood's Canal, which is from 50 to 60 fathoms deep. A number of brooks empty themselves into it on the west shore, but only two or three of them exceed 10 miles in length; and these have rocky beds and strong currents forming some pretty cascades on the upper reaches. All these brooks take their rise in a ridge which is 2000 or 3000 feet high, and forms the foot hills to the mountains of the Olympus district.

Olympus looked so near in the beautiful bright, clear air, that I determined to attempt to reach it through the forests which cover the whole peninsula on which it stands—but in this I entirely failed. Except afterwards in the forests of Matto Grosso, I never saw such an impenetrable thicket as this. The trees, many of which cannot be less than 300 feet high, not only grow very close together, but the dead of ages have fallen in an impenetrable lattice through which even the dogs failed to find a way. From some cause, perhaps the dryness of the climate, the dead trees have not decayed and fallen to dust very rapidly, and they lie, or partially lie, piled one on another, in such a way as to present an impenetrable wall to the traveller, under, through, or over which he has the utmost difficulty in finding a way.

I do not willingly give up an enterprise I have once entered upon, and I made really desperate efforts to penetrate this fallen mass of logs. I had two hired companions with me, but these men were not very energetic workers, having made up their minds from the first that I should fail in my object. No trappers ever come hither, the ground being too hard to work to be profitable, and the few lazy Indians of the district eschew it for the same reason. Attempts to burn the forest have also resulted in less destruction to the trees than on the other side of the Sound, for what particular reason I could not perceive; but it is a subject for congratulation.

I had hope that if I could once fairly penetrate the forest I should find the interior more open than the outskirts, but the very reverse seemed to be the case. At the furthest point the piled logs interlaced by tangled brushwood formed a barrier at least 40 feet high, to the top of which I had worked my way. An attempt to penetrate still further resulted in my slipping into a deep cavity below this mass, and being so much shaken and bruised that I was obliged to give up the enterprise, after penetrating not more than a dozen miles in five days' excessive labour. An endeavour afterwards to work up the bed of one of the streams was equally unsuccessful, the course after a few miles being as badly blocked as the land. Possibly there may be a path up some one or other of the narrow valleys, but I had not time to spare in its quest; and probably many attempts would be made before success rewarded exertion.

The forests of this district will probably be the last in the State to disappear. Clearing them will be slow and laborious work, for the streams are not large enough to float down the huge logs. Bears and other large animals are known to harbour in the recesses of these forests; but they are very rarely seen. It is impossible to penetrate among the trees at all without a free use of the axe, and the noise gives the animals ample warning and time to make their escape. The general condition of the forest is one of gloomy silence, unbroken by the chirp of a small bird, or even the hoot of an owl, a bird which generally rejoices in such solitary situations.

I do not remember to have seen any living creature larger than an ant. This ant was very busy on some of the most rotten of the logs, running along the bark and in and out of the hollow crevices in myriads. It resented disturbance too, and though the individual bite was scarcely noticeable, the great number of sharp pricks one had to endure was somewhat of a nuisance.

Probably if I had had time to devote to the search I should have found a considerable number of interesting insects here. Small moths, some whitish with brown and black markings, others reddish in colour, were in flights so numerous that it was impossible not to notice them. Then again I was attracted by some remarkable-looking fruit, nearly a foot long, and in shape like a cucumber, growing on a pine tree. At great trouble and risk one of my companions climbed up and obtained a specimen of this supposed fruit, only to find that it was a bunch of deformed pine leaves distorted by the presence in them of some kind of larvæ.

The waters of the Sound swarm with fish, and some at least of the rivers which empty into it are visited by shoals of salmon, which is the fish most sought after, because of the great demand that there is for it, not only in the United States and Canada, but also in Europe. Canning establishments were, at this time, already to be found on the shores of the Sound, and I heard that others were planned or already in process of erection.

I tried several parts of the Sound with a hand line, chiefly to obtain an agreeable, and not-often-to-be-enjoyed, change of food. Among the fish pulled out the best were tom-cod and mullet—both of excellent flavour. Besides these, and far before them in point of numbers, were dog-fish, jackies, and sea-perch. I saw also, in the hands of fishermen, soles, dabs, turbots, lump-fish and rock-fish, but these are the local names only. None of these fish were the same as those bearing similar names on the east side of the Continent, and I have failed to positively identify the specific names. Clams were similar to those of the east side, and the mussels were the largest I have ever seen or heard of, some being more than 7 inches long.

Partly the result of accident, partly to obtain a much needed long rest, I spent six weeks on and about Puget Sound; and here I pause, for there must be a break in the narrative.

I resume the journey, starting my description of the country at a point near Crab Creek on the east bank of the Columbia, for I was bound for the inland States of the West now.

Crab Creek is a permanent river, but like many others of those desert streams previously described, it loses itself in a "sink," and this stream is somewhat different from others in the region inasmuch as it runs at the bottom of a deep gully—at any rate on that part of it where we camped. The surrounding country is called desert, but there is enough herbage on it to make collecting forage for a dozen horses no very onerous task, and in spite of its being now winter according to local opinion, there were flowers creeping, and flowers erect in habit of growth, which, if seen in a city garden, would perhaps be considered far more charming ornaments than many long-cultivated and "improved" varieties. Shrubs and trees there were none, and in search of the materials for a fire we could find nothing more burnable than a small bush 2 or 3 feet high, defended with thorns long and sharp, which punished the incautious hand cruelly. Yet everywhere there were flowers; there always are flowers on these Western prairies, forming one of the chief charms and relief from monotony; not that the Washington prairies lack other varieties of scenery. For everywhere on this part and further North, where the grass grows thickly, there are buttes, bluffs, and curious isolated rocks in ever-changing variety, affording sometimes in the days when the policing of the wilds was a thing more often heard of than witnessed by the solitary traveller, lurking-places for hostile Indians, and quite as much to be dreaded white scoundrels—worthless fellows who, having been to the diggings and discovered that the gold could not be collected without a considerable amount of that, to them, worst of all tortures—muscular exertion, had taken to robbing the despised class who had condescended to imitate slaves by working. I remember (if I may be reminiscent for a moment) chasing a couple of these foot-pads once, and emptying a six-shooter at them, purposely firing wide, however, as I do not like the look of blood; and the way the scamps scuttled and ran, and one of them bellowed and bawled, and carried his paunch like fat Jack Falstaff, was so comical that it never recurs to my memory without exciting a chuckle. Finally I rode over them and left them sprawling on the ground, and thoroughly convinced, I hope, that scamps do not always feed in clover. And yet both those fellows carried an armoury which, in capable hands, would have floored a dozen horsemen.

A great portion of the surface of this desert, lying between the Snake and the north bend of the Columbia, consists of sand. It is not, however, a shifting sand, and near the Crab it often rises into hills or domes, and is largely bound by creeping weeds, some of which bear thick clusters of small white flowers giving the ground a pretty appearance. I noticed that the flowers on the open prairie were generally white or yellow in colour, while in sheltered nooks and gullies among the rocks there were many that were of different shades of red and blue, tints not often seen in the open. By-the-by there is a bright red flower, with a blossom about the size of a sixpence, that is only found near alkaline mud-holes.

Notwithstanding the grumbling that one hears from the ranchmen about the lack of good water in this desert, I do not think that there is any spot on it that is a dozen miles from a good spring. Springs become quite numerous towards the middle of the plain; they only require looking for. And they are all probably permanent, for there is such a slight rainfall in this district that it cannot affect the springs.

Some of these fountains have shapes which it puzzled me to account for. The trough of one was a deep hole in the rock, so symmetrically circular in form, that it appeared to have been bored by a machine-driven tool. This hole refilled to a certain level as fast as it was emptied, but did not overflow its margin. Some of the lateral holes in the rocks, too, from which water gushed, were perfectly circular in shape.

A stream of water, in a desert region, is generally marked by a bush growth of vegetation on its margins; but this is not the case here. Many of the springs burst forth from under naked rocks with naked rocks all around. At most a bunch or two of green reeds mark the site of a spring. On the whole of the southern part of this plain, we did not see a dozen plants which could be correctly described as trees. A few solitary trunks, 20 or 30 feet high, seemed to have been trees once; but to all appearance they had been dead years, if not decades. Probably seeds are sometimes brought by birds, or driven by the winds, and finding a convenient crevice with a shovelful of some sort of earth, spring up and make a struggle for existence—a struggle that ends in an early death. It is noteworthy that these solitary dead trees in all parts of the country usually have a nest of some kind of bird of prey in them—very often that of an eagle. There is not the slightest concealment of these nests; and such is evidently not sought by their constructors. Sometimes the large birds will destroy the nests of a smaller species, and appropriate the site for their own use. Eagles and ospreys are the most often guilty of this trick. Golden eagles and ospreys always build in trees if there are any convenient to the territories over which these two birds are in the habit of arrogating supremacy. The bald-eagle, as Americans usually call the white-headed eagle, prefers rocky sites; yet sometimes builds in trees.

Near the Upper Crab Creek, on which there are a number of ponds, we found an immense herd of cattle, in charge of about twenty cow-boys. Herds such as this are driven from district to district in search of fresh pasture, and were already tolerably numerous in those parts of the West which were not at too great a distance from the settlements, as the ranches and farms were still called.

There was much talk among the boys of a grizzly bear which had given them trouble, having destroyed several of the animals under their charge, including a horse. Quite recently it had killed a cow and walked off with her calf, and all traps, poison-baits and hunting-parties had failed to put a stop to Bruin's depredations. The boys were of opinion that it was a very old and cunning grizzly, and at the camp-fire that night I was invited to join a party which was about to start with the determination to destroy it before they returned. I seldom went in search of sport for sport's sake; but on this occasion I consented to accompany the party, and as it is one of the very few occasions on which I experienced much excitement on a shooting excursion I may conclude the account of Washington with a record of the little adventure.

Tracks showed that the bear had gone off in a north-east direction, carrying the calf with it, as a line of blood-spots indicated. Four miles from where it killed the cow it had stopped to bury the carcass of the calf, having, as was afterwards discovered, eaten half of it. A suggestion that this spot should be watched did not meet with the approval of the boys, and as I afterwards learned, it is a very common habit with grizzlies to bury their prey, and either from forgetfulness, or being better provided for, never returning to dig it up. Indeed the remnants of a meal, which are buried, are often so sorry in quantity and quality, consisting, perhaps of a few bones and fragments of skin, that it seems probable that the bear has some other object than providence for the future in hiding them.

The place where the calf was buried was the margin of a sink, and abundant footmarks were seen impressed on the moist sand, the bear having apparently walked round about in aimless fashion before going off again to the north. For another 8 miles we followed the tracks until they were lost on some hard rocky ground. An Indian would still have been able to trace them, but we had no Indian with us, so we spread abroad and searched every nook and cranny capable of concealing a bear; but without success.

That night we camped on ground not 20 miles from where the City of Spokane now boasts its 40,000 inhabitants, and it must already be a historical fact of some interest that it is only about thirty years since a grizzly bear was shot within sight of its suburbs. Spokane Falls had an existence; but I never heard a suggestion that it was likely to become a place of much importance. There was certainly not a hundred permanent inhabitants there, and the buildings consisted of stores, sheds and drinking saloons, the place being a sort of dêpot supported by the periodical visits of the Idaho miners. Store-keepers, loafers, and female spiders on the watch for victims, composed the population, such as it was. There is now a network of railways round it, and it is one of the most important junctions of the West.

We built a sort of cave with slabs between two masses of rock, and made a great fire in front, for the night air is very keen at this season. Pipes were lighted; somebody produced a bottle of whisky; the jovial song and the merry jest went round; and probably Bruin had his share of the amusement, supposing him to be capable of enjoying it—for events soon showed that he was lurking at hand. One by one the boys dropped asleep, each snugly rolled in his blanket; and nobody missed feather-bed or pillow—perhaps not more than one or two of us had ever made acquaintance with those effeminate luxuries.

In the middle of the night there was terrible excitement among the dogs and horses, the former barking and howling dreadfully, the latter snorting and striving to break the hobbles which prevented them from stampeding. The startled boys wriggled from their blankets and jumped quickly to their feet, clutching at the stacked rifles—for Bruin was upon us. Everybody saw him, and everybody blazed away at him; and what is more, everybody was sure that he had hit him; but Bruin did not fall. He disappeared, no one knew how; and it was soon found that one of the dogs had gone with him—much against its will, no doubt. The worst mischief, however, was the bad clawing of the flanks which it was discovered my little mare had sustained. I was very much vexed at this, and rendered spiteful against Bruin; and this piece of mischief cost the rascal dearly.

It was impossible to put the saddle on the mare; so while the boys resumed their hunt, I started on foot to lead her back to camp. I had gone 5 or 6 miles when the snorting and trepidation of the horse put me on the alert, and looking round I perceived Bruin on the top of a small butte, in the attitude of suddenly arrested progress. He had evidently intended to come over the rock, and been surprised by the unexpected sight of me.

Instantly I dropped to one knee and took a careful aim. He was 100 yards distant, and only his head and shoulders and one foreleg visible. Surprise must have overcome his cunning, for he continued to watch my movements instead of immediately bolting. I could not see the effect of the shot; but the bear disappeared simultaneously with the crack of the rifle; the mare also starting off across the plain.

It was rather an anxious moment, for a wounded grizzly is a very ugly customer, but as he did not appear I went to look for him, and found he had gone. A quantity of blood on the rock showed that he was badly hit, and I started to follow the track, the mare having quite disappeared—in what direction I had not noticed in the excitement of the moment.

For 2 miles I followed the broad splashes of blood; and then came up with the grizzly crouched down against a rock, and very bad. He growled and showed his teeth and tried to struggle to his feet; but he was pretty well helpless; and advancing close enough to make sure of my aim, I finished him with a ball through the head. He was not a particularly fine specimen of his race; but he had done a great deal of mischief in the course of his career.

My plight was not a very pleasant one. Some time had been lost; I was a good 20 miles from camp, and was most anxious not to abandon the mare. Not knowing what to do for the best, I returned to the last night's camping-place, in the hope that some of the boys would turn up there. But they did not, and I spent a second night there, having loitered until it was too late to proceed to Spokane Falls, distant a dozen miles.

About two o'clock in the morning, a large party of the boys, and my own men, arrived from the camp, having been alarmed by the return of the lacerated mare, and fearing I had met with an accident. They succeeded in tracing me to the spot where the bear had been killed; and afterwards the light of the fire attracted attention, being visible several miles across the plains.

The next morning it was discovered that the wolves had found the carcass of the bear; and though they had not quite picked the bones clean, they had utterly destroyed the pelt. The little mare recovered, and though her skin henceforth bore some ugly scars, she went through considerable further service.

The party of hunters, unaware of my success in bringing the career of the cow-killer to an end, remained out three days longer; but were not a little pleased when they learned the fate of so troublesome an enemy to their charge.

This adventure seems to make a big show on paper; but such little excitements were common enough in the wilds a generation ago; and no man could travel far in the West without experiencing some such incident.

CHAPTER IV

IDAHO

WE crossed the frontiers of this State near the Posthouse on the Spokane River, and immediately turned southward; this part of the territory being a narrow slip of land 40 miles broad. It is mountainous and rugged, with plenty of pine timber yet growing, though we saw tracts which could only be described as forests of stumps. Where the timber had gone to, I did not ascertain; but the mines consume a great deal, and all the newly-born villages, towns, and cities cut their teeth on timber, *i.e.* the first houses and stores are log and frame erections, because they can be run up in a day or two, I suppose, for there is a never-to-be-exhausted stock of the best building materials lying ready to hand, and, indeed, the rule of the West seems to be that when "Chip City" is burnt down (its usual fate) "Stoneville" shall take its place. A "ville" in this region generally contains about four times as many inhabitants as a "city."

A considerable part of the description of Idaho was necessarily given in the chapter on Oregon. For the Mad or Snake River, see pages 91-99.

This northern part of Idaho, and Montano beyond it, is a great mining region, and we passed close to some mines in the face of a mountain where several hundred men were at work. These no sooner caught sight of the waggon than a great part of them came crowding into the valley, and in the course of the day I sold the entire stock of articles I had to dispose of, and a great deal that I could ill afford to dispense with, but it was impossible to refuse these isolated and labour-wearied men anything that could give them a little comfort. That the miners of this isolated region endure great hardships it is scarcely necessary to assert, and they certainly are among the hardest and most willing workers of any country in the world. There was no woman among them, and the specimens of the sex whom they meet when they go down to the towns for "a spree" or a "bit o' cussedness," are not such as are likely to bring any refinement, or real pleasure, into their hard lives. They are exceedingly kind to each other in sickness or accident, and although every act and speech is rough beyond record, yet they are scarcely less thoughtful than a woman when "Jack" or "Jim" lies dying—no uncommon occurrence. For though actual disease is almost unknown among them, some of the younger and weaker men, especially new hands from the big Eastern cities, break down very suddenly and die before they can be sent home—and accidents are frequent.

The mines hereabout, furnishing, mostly, other minerals than gold, are worked by companies, and the men are very loath to be thought thin-skinned or anxious to shirk their work. They therefore hold on till they break down, the weaker men trying to show equal endurance with the old and seasoned hands. There was more than a score of sick lying in a hut used as a hospital, and I left my entire stock of medicines for their use. Not one of them was suffering from organic disease, though one lad was said to be dying of consumption; he had really given way to excessive strain on his young and undeveloped frame. Five or six were very ill of whisky poisoning, having recently been on one of those "sprees" referred to just now; one was fearfully cut and stabbed, the outcome of a knife brawl; and the others were the victims of a mine accident. There was no surgeon in the district, and "the boss" did the doctoring. He professed to have had some training, but his panacea for all ailments was "an ounce of salts," with a piece of sticking plaster for cuts and bullet wounds. Asked if they had many deaths under this treatment, he exclaimed, "Deaths! I guess you don't know how tough the boys is!" a sentence which sufficiently reveals the state of the gentleman's education, and gives hint enough of the extent of his "training."

Injuries from bullet and knife in this region are of such common occurrence that nobody notices them unless they terminate fatally, yet the miners do not quarrel much among themselves. It is the loafing, worthless rascals, who haunt the neighbourhood of every mine, and wander from ranch to ranch, living by alternate stealing and begging, who are at the bottom of all the mischief. Fights between them and the miners and cowboys are of daily occurrence, resulting from attempts of the rogues to cheat—in some form—the honest men.

Lead and silver, the two metals being found in combination, are the principal objects of the mining works here, though one of the men told me that he started as a placer-miner in the neighbourhood, doing pretty well for a time. He exhibited a quantity of his findings; indeed, I took some of it in exchange. Some of the nuggets, which might be more properly called pellets, exceeded half an ounce in weight, and the bulk consisted of minute grains.

This placer-mining, or search for alluvial deposits, is very precarious work, but on the whole it is the most profitable form of gold searching which the individual, who cannot command crushing machinery, can follow. It is chance work. When a nest, or deposit, here termed "a placer," of small fragments is found, the probability is that there are others in the neighbourhood, and for these the miner patiently searches, sometimes for months at a time. He may find them, or he may not; he has to take his chance of that, and the quantity of gold per placer varies greatly, sometimes only a few dollars' worth, rarely more than a dozen or twenty ounces. Four hundred dollars' worth may seem a nice little bit to stoop down and pick up; but when it is considered that the finder has spent six or twelve months in never-tiring search for it, the gilt looks dim. Big nuggets, such as those which a few fortunate persons in Australia are described as occasionally finding, seem never to be found in America—at least I never heard of any. The only really profitable gold-mining in this region is the quartz-crushing, carried out by companies, whose wealth enables them to bring expensive machinery to bear upon the work.

At this period Idaho, and the adjacent district of Wyoming, were still merely territories, with nearly twenty years to run before they were to be admitted to the Union with the exalted title of States. The population of Idaho was known not to exceed 20,000 persons, exclusive of a conjectured number of 7000 Indians. One half of the 20,000 were miners; the other half mostly consisting of storekeepers and other tradesmen in the infant towns; and many settled ranchmen and farmers — the latter especially; for parts of Idaho are rich in corn-growing qualities.

The whole of the north part of the territory was, at this time, an almost unbroken forest; and my estimate is, that about three-fifths of the entire State was covered with good timber trees. Inroads on the vegetable wealth had commenced; but as yet was confined to the Washington borders, and the banks of a few of the bigger rivers.

All the rivers which we found in our path were turbulent, rapid-flowing streams, generally running at the bottom of deep cañons, which we found it most difficult to pass. Often we were forced to go many miles out of our way; and occasionally the waggon was pulled forcibly by means of tow ropes through torrents which almost swept it off its wheels. This became a favourite way of crossing dangerous currents whenever we could collect a sufficient number of Indians or others to man the ropes. The horses were guided over in a similar manner, otherwise they would often have been swept off their legs and drowned.

Of course we travelled hundreds of miles without meeting a soul of any kind, black, red, or white; but whenever we met an Indian, we found by experience that it paid us to wait a day or two until he collected a party of his comrades; which for a pound or two of gunpowder or a couple of knives, he would always gladly do. In this way, and sometimes by making rough log bridges, we crossed a dozen roaring, fretful, chasm-engulfed streams; not always, however, without accident; for three horses out of the team of twelve were drowned. These we replaced, though with inferior animals, at one of the ranches at which we temporarily sojourned.

In some parts we found bridges had been erected by the miners or farmers; and now and then travelled along a roughly defined track; but much of our course lay through valleys densely thronged by the huge trees of a virgin forest. Trees of enormous girth were seen growing on some of the hills, especially certain isolated clumps at an altitude of about 5000 feet, but trees here were not so tall as those on the Cascades and Sierra Nevada. Although we had been travelling for many months through forests consisting almost entirely of pine trees, the scenery never became monotonous. There was an almost daily change, not in the characteristics of the country, but in the arrangement of rock and tree, cascade and river, which always afforded a fresh, and always delightful, natural picture to the eye. The continual description of rocks and trees of the same type must naturally appear to be monotonous in a written description, but it is astonishing how Nature relieves the general features of a country by changes which may seem trifling unless actually seen. There is much in every landscape which it is impossible to convey an adequate description of with the bare aid of the pen.

The game here, also, has been much thinned; largely by trappers from other States; but we found many parts in which the deer and other animals were so tame that it was certain they had never yet been seriously disturbed. Soon after crossing the Salmon River, and after we had camped for the night and lit a fire, a herd of moose was seen close at hand; and within ten minutes a fine bull, standing nearly 7 feet high, was shot, affording a supply of meat which lasted us, fresh and dry, many days. Moose beef is not a particular luxury; but to travellers unable to get a joint of fresh meat for weeks at a time, a moose is a Godsend.

This was the first moose seen in, or near, the Pacific States; not because those States are not included in the natural range of the animal, but evidently because it had been nearly exterminated by constant shooting, in season and out. In this region we saw it several times, and often on the mountains at some height, not less than 2000 or 3000 feet above the valleys; and on one occasion at a height of 6000 feet above the plain. There are wipiti too, and Virginian stags in abundance; and at Bear Creek, an Indian gave me such a glowing account of the wild sheep in the adjacent Horn Mountains, that I spent a couple of days in going after them, under the impression that big-horn sheep were meant. This proved to be a mistake on my part; however, I enjoyed excellent sport; if it be excellent sport to walk over 30 miles of rocks, interspersed with gulches, ravines, bluffs, and rushing water-courses. This I did, lying out in the open at an altitude of 6000 feet (by guess), and at length was rewarded with *one* shot.

The sharp eyes of my friend, the Indian, were the first to sight the game, which looked to be a mile distant—but the clear atmosphere of the West is deceptive, causing places and things to look much nearer than they really are; and after an hour's great exertion, climbing over great pieces of rock, and dropping into most awkward little holes—they were too small to merit the name of gullies—out of which I should never have been able to scramble without the aid of the lithe Kestaway, the sheep were still far out of bullet range. Moreover, they seemed to have got an inkling of our, to them, baleful presence; and as we advanced, slowly moved off, so that we did not lessen the distance between them and ourselves. Hour after hour we kept up the slow pursuit; and a similar experience was once my lot when pursuing big-horns in the mountains north of the Salt Lake.

But the Indian was a cunning hunter. After a somewhat prolonged study of the country from the top of a pinnacle rock which no animals but cats and Red Skins could have climbed, he bade me "Hide; lie down in hole." Accordingly I squeezed my large and heavy person into an uncomfortably narrow crevice. "Now wait; soon bring um round." Accordingly I waited, hour after hour, with a patience that emulated that with which my friend's race is gifted, occasionally lifting a cautious eye to watch the intended victims; but they had disappeared. I obeyed the Indian's injunction, however, and waited, having the fullest confidence in his skill as a hunter, and well assured that he knew what he was about.

By-and-by I perceived the sheep coming up a valley at the bottom of the mountain where they were last seen. The Indian had got to windward of them; they had scented him, and were retiring, all unconscious of the hidden foe awaiting their approach. Most provokingly, just as they were coming nicely within range, the whole herd, more than twenty in number, turned to the left and disappeared behind the rocks. As it was useless to try and overtake them in such a country as this, I thought it as well to continue to lie quietly, and ultimately my patience was rewarded. Just as the shades of evening were closing in and darkness threatened, I saw a buck, presumably the leader of the herd, standing on the top of a craggy rock, and apparently surveying the ground around. Perhaps something had aroused his suspicion or curiosity. In any case his form stood out distinctly against the sky, presenting a splendid shot at less than 200 yards' distance. I distinctly heard the heavy thud as he fell; and a moment later the echoes of another far distant shot told plainly enough to a backwoodsman that the Indian was signalling that he had been waiting to hear the report of my success, and would now soon rejoin me. I made a big flare of dry herbage and bushes for his guidance, and then went to pick up the game, which had fallen in an awkward spot.

It was not, as I had seen long before, a big-horn; but a mountain goat, *Aploceras montanus*, weighing, as I judged by lift of the hand, something more than a hundred pounds, which is not much more than a third that of a good specimen of the big-horn. However, it was satisfactory to have had some reward for all my trouble and expenditure of time.

This goat is a somewhat singular animal. The hair is about 8 inches long, hanging straight on the flanks, but standing upright like a mane down the back, giving the creature a rough and humpy appearance. The coat is quite white; and the horns, black in colour, are curved backwards—in all respects quite different from those of the big-horn.

It had been dark a couple of hours before the Indian rejoined me; and, of course, we had to spend the night where we were; for even he was aware that we must inevitably break our necks if we attempted to reach the lower valleys in the dark. There was no moon, we had not brought blankets, and the cold was intense; yet we slept soundly, our feet almost in the embers of a roaring fire, our heads pillowed on the dead goat. With the first rays of morning light the Indian was at work skinning the carcass while I grilled chops for breakfast; but wild-goat flesh proved to be tough and flavourless.

Coming down the mountain side we discovered a small log hut, snugly hid in a sheltered ravine. It was very small, 9 or 10 feet square, and built of such small logs that it was probably the work of one unaided man. The hut was abandoned. A double-barrelled shot gun, destroyed by rust, hung on the wall, and a pot was suspended over the hearth; but wolves or foxes had been there, and turned the place topsy-turvy. There was a rough bench, and a deal box, fastened on four short posts, served as a table, on which lay an unfinished letter addressed to "My Dear Sister"; but the writer seemed to have been interrupted before he had penned any important remark.

What strange story of the wilderness were these the relics of? Several articles about the hut showed that the inmate had been a trapper; but his rifle and pouch-belt were missing. A trapper would be sure to be possessed of a rifle, though it is unusual for men of this class to own a shot-gun as well. The probable explanation is that while the man was in the act of writing he had been disturbed by the wandering of a bear near his hut. Seizing his rifle and pouch, he had gone forth, and lost his life in an encounter with the brute—perhaps after following it many miles; for there were no signs of a struggle near the hut. He must have gone forth hastily; or he would have closed the door to keep out foxes, etc., which are mischievous pests, often causing the trappers serious loss by gnawing their boots and belts, and other leather articles; to say nothing of destroying such pelts as may have been collected.

The Indian seeming to think that I was rather disappointed at the result of our little expedition, brought me, two days later, a fine specimen of the big-horn sheep which he had succeeded in shooting. He had disembowelled it to lighten the burden, which he carried across his shoulders—but it still weighed 247 pounds. From an examination of stuffed specimens I am satisfied that this sheep and the big-horned varieties of Asiatic wild sheep are animals of the same species. There is no material difference between the American big-horn and *Ovis nivicola*, *Ovis poli*, *Ovis ammora*, and *Ovis americanus* or *canadensis*, as some call it. In all these the bucks or males have enormously thick, curved horns of the same shape, and the females small, short, slightly backwardly curved horns—quite different in shape to those of their lords. That they are mere varieties seems to be further borne out by the fact that the big-horn is an animal much affected by locality, insomuch that trappers generally, and many American naturalists, distinguish two or three species even in the Rocky Mountains. These latter, however, I feel certain, are mere varieties of the same animal.

In this part of Idaho there are several valleys of considerable breadth, which are covered with rich grass. In the valleys what few trees and bushes there are are scattered about in clusters, and the ground is of the nature of a prairie. It is here that the farmers and ranchmen are established, the land being admirably suited to agriculture; though the farmers complain of want of sufficient rain. They depend largely on the brooks and rivers which never fail them, so that, on the whole, they have little to grumble about. The rainfall is certainly scanty, though much more falls in the valleys than in the south plains (Snake River district) where there is scarcely any.

The day I returned from the sheep-hunt a shower of snow fell; but it melted in a few hours, and by the next morning not a trace of it could be perceived except at a good height up the mountains. Afterwards there was a drizzling rain of a few hours' duration, but not enough to wet the ground an inch beneath the surface. I was surprised at the mildness of the climate, considering that the territory is one of the most northerly of the United States. In this latitude on the eastern side of the Continent, at this time of the year, there is always bitter, biting weather.

One of the greatest pests to the valley farmers are animals of the prairie-dog kind. There are at least two species here—both very common and abundant—the gopher and the prairie-dog. The former is called by some the suslik, and in outward appearance differs but little from the prairie-dog, except in size, being much smaller; but these were hibernating at the time of our visit. The prairie-dog, *Cynomys columbianus*, however, occasionally showed itself; and I am by no means convinced that this species hibernates, though many American naturalists say that it does locally; and that hibernation depends on its northern habitat. I here missed the old-fashioned-looking little owls which usually share the burrows of these animals in the Eastern States, though in the latter locality the prairie-dog is a different variety to the one I have just mentioned.

The habit of hibernation is a puzzling one. Many little creatures which one would think ill adapted to combat the cold of the Northern States are as lively and active as possible in winter-time, while animals apparently well furnished to brave any hardship or danger are buried in the ground in a state strongly resembling death; indeed, in a state of temporary death. For hibernation is *not* sleep, as it is frequently asserted to be. An hibernating animal does not breathe—it cannot be suffocated or drowned, though immersion may cause its death otherwise than by drowning. First, cold water may reduce its temperature below the lowest vital point; secondly, warm water may restore animation, and an animal aroused unnaturally usually dies, even if it again sinks into a torpor.

These remarks were suggested by the activity of a little creature which I should call a tree-mouse if I did not find it described in books and museums as a white-footed mouse. Which particular species this was I cannot positively define. It was about the same size and shape as the common house-mouse, of a beautiful greyish-brown colour, with white stomach, abdomen, and legs. It ran up and down the trunks of trees quite as easily and quickly as a squirrel; but it did not seem to be able to leap from branch to branch like that little animal. I followed it with the eye to at least a height of 50 or 60 feet, but it was so active, running round the trunk so quickly, that the precise moment of its disappearance could not be noted, and it probably went much higher. It runs about the ground in all directions, and for long distances, but its home is always in trees, and it does not seem to visit the wide prairies. It makes nests, several of which I found. They were at first supposed to be birds' nests, especially as I found winter stores of food collected by these mice quite independently of the nests, and stored in another place. The nest is egg-shaped, with the entrance at the lowest part, and composed of lichens, fine grass, hair and feathers, with a few leaves and pine spikelets interwoven, and carefully lined with wool. The hair and wool appeared to be those of foxes, deer, and many small mammals; and as some of the materials were matted with bird deposit, and for other reasons, I think it is safe to assume that these mice obtain the materials for their homes from birds' nests—perhaps those which are disused. The mouse-nest is placed under a big bough of a tree, as high as 40 or 50 feet by actual measurement, or suspended against the side of a hollow tree; and one was seen in a hole under some old roots near the ground.

The stores of food were found in the hollows of decayed trees as high up as the nests, and contained a great variety of small seeds, some of which I recognised as the seeds of weeds growing in the surrounding wilds, but there was no grain of any sort. The quantity in some of these stores was so great—five or six quarts—that I think it must have been collected by a whole family of mice.

In addition to seeds the mice eat grubs, pupæ, beetles, and other insects which secret themselves under the bark of trees; and I watched them deliberately tearing the bark from dead boughs in search of such prey. Grubs, etc., were sometimes held in the fore-paws, the little animals sitting on their haunches like squirrels while eating. Like the domestic mice of Europe, they seem ready to eat almost anything; and there is no doubt that they will take to grain where they get the chance; for having procured some forage from a farm, the next morning I saw a dozen of these mice under the waggon, gathering the grains which had been shaken from the horse's nose-bags. The little creatures hereabout are not very timid, and they will run round a person standing or sitting still; at the slightest movement or noise, however, they bolt up the trees with great rapidity; and if they are surprised far from trees, they at once run back to the neighbourhood of their usual shelter. Of course I have seen these mice, of several species, or varieties, in many different parts of America; but it was here only that I had much opportunity of studying their habits.

I noticed that all the rivers and streams of this part run more or less westward, but many of the valleys lie almost due north and south. The farmers, however, say that these valleys are well sheltered from all objectionable winds. Many of the farmers, especially in the southern parts of the valleys, had, at this time, no neighbour within 50 miles of them. The middle portion of the territory appeared to have no white inhabitants at all; and a part of the Indian population was wandering about here, and living, as in ancient days, by hunting. All the Indians whom we met in this territory were quiet and friendly; and though a few of the farmers spoke of them as "cusses" and thieves, no proofs were brought forward to justify the suspicions sometimes expressed against them; and the probability is that though a fowl or two, or an occasional sheep, may have been stolen, it is doubtful if, on the whole, the depredations of the Red man in Idaho exceeded those of the gipsies in the rural districts of Europe. I know that the Indians, who are, as a rule, a truthful race, denied committing acts likely to provoke the White man; and most of them expressed strong repugnance to being relegated to "Reservations," then in process of execution, or contemplated, in all the settled portions of the West. There was still game enough in Idaho to support the few Indians who wandered there; but in most places, in other

States, the hunting grounds of the Indians had been destroyed, partially destroyed, or much disturbed; and yet the Red man was, generally, bearing his troubles patiently.

I cannot enter fully on the subject here, but may say this: That if those who write "science" know no more of their subjects than most of those who have written of the Red Indian "scientifically," the fittest place for science is the dusthole. Generally speaking, the scientific writers on the Red man know nothing worth knowing about him, his original distribution, language, habits, or religion. Grammars (!) copies of the Scriptures, and newspapers (!) are issued in his language, which resemble the real thing about as much as the rough model of a Cockney boy resembles a sea-going ship. There never was a *fixed* language in North America; and those who have *fixed* it have really invented a jargon of their own, which is understood by the Red men *locally*, and locally only; and those who think, or are taught otherwise, are deceived.

Again, I read the other day the assertion of a received writer in this country, that the belief in a Supreme Spirit was never prevalent among the Red Indians. That is the guess of supreme ignorance. The belief in the Great Manitou was, *and still is*, universal among the Indians. Of late it has been the fashion to decry and sneer at the "creations" of Fenimore Cooper, Catlin, and other writers, who knew the Red man well. These writers, however, have left a faithful picture of the Indian; and the crowd of theorists, who take the popular taste of the day, know nothing of him, either as he was or is. To them he is a "savage"; and they not infrequently try to fit him with a suit of psychological clothes that have evidently been stripped from an African, or a Polynesian negro.

Nothing very definite can be written of the origin of the Red Indian; whence he came and how he was distributed over the two Continents is matter for conjecture and conjecture only. There is no real evidence —at least of a general nature. Notwithstanding the assertions of several American writers to the contrary, and the equally ignorant assertions of others in this country, it is certain that ships from Europe on the one side, and junks from Japan and China on the other, were driven occasionally to the coasts of America at very remote ages, and probably had a great influence in developing the civilisation of some of the tribes.

Here I can say nothing more on the subject than that it is remarkable that one race can show so many differences of habit and appearance which have nothing to do with locality. For instance, it has always puzzled me why the American Indian should be called "red." That is not his normal colour. It is true that many tribes are brown—some dark, some light, but "copper-colour" is not a correct description of this tint. Other tribes, and that in the Northern States too, are decidedly black, though not often as black as the negro. Others have as much claim to the title "white" as a great many Europeans; and another popular error is that all American Indians have aquiline features. The majority have, certainly; but there is a great deal of latitude in the degree of the "Roman bend," and more than one tribe has features almost as flat as those of a negro. Perhaps there is a scientific explanation of these strange facts. The explanation, beyond which I am not likely to travel far, is that there is either a difference of races, or a strong local admixture of foreign blood. The first I cannot believe; the latter I consider to be established beyond reasonable doubt.

The disposition of the Indians varies very greatly; but not as regards the members of tribes. The Apaches are the most villainous of the North American Indians; but there are a few more tribes in the south-western and western portions of the States, who well deserve the epithet often applied to them of "unsavoury cusses." These wretches have perhaps received less provocation than the Indians of any other part of the country, yet nothing can cure them of their haughty and never-sleeping hatred of the white settlers. My information carries me down to a recent date; and so far as that information goes, I learn that it has been found impossible to keep these men on their reservations. They make raids, or rob individual travellers, and if hard pressed ride over the borders into Mexico, and *vice versâ*, and though the Governments of the latter country and the United States have made mutual arrangements for the pursuit of the marauders, they have not yet been able to suppress the evil; the nature of the country, and scarcity of population, being all in favour of the Indians.

The Araucanians in the south half of the dual-continent are a similar haughty race to the Apaches; but have many excellent qualities which the latter entirely lack; nor are they habitual thieves. They have broader and flatter features than most Indians; have acquired a considerable degree of civilisation, and are hospitable to strangers. In North America, in the Rocky Mountains, and east of that range, I have ever found the Indian a courageous, manly, and noble-hearted fellow—a man such as Cooper and other writers of the past century, who had a *personal knowledge* of him, have painted him. If there were exceptions, they were exceptions that proved the rule; exceptions where the men had been besotted and the women prostituted, by those who were assuring the world that they were moving heaven and earth to "improve" and "rescue" the poor fallen creatures; but alas! had found them unimprovable and worthless weeds which must inevitably perish, and—(*sotto voce*)—perhaps the sooner they went the better. This is not a nice assertion, but the tone of the picture has not been made too dark.

As we travelled south and approached the plains north of the Snake River, the character of the country underwent a complete change, and the climate was similar to that of North Washington. There were a few flowers still blooming here and there on the prairies; and a few trees were scattered about, standing singly, or in twos and threes, with an occasional clump of a dozen or twenty. They consisted of pines, aspens, cottonwood, and a few other kinds which I either did not recognise or have forgotten the names of. There were also bushes and shrubs; for the plain is, at first, a rich track, well covered with bunch-grass, as it is called, which is excellent fodder for all kinds of farm stock. Here, for the first time in this territory, we saw large herds of prongbuck, or antelope, as many as four hundred in one herd. They were shy, and turned away on sighting the waggon; and it was only by an expenditure of much time and trouble that we succeeded in shooting as many as were wanted for food.

No reptiles or batrachians were seen in the mountainous region, though I heard that they were plentiful enough in the summer months. They must, therefore, hibernate. Nor did I find any on the southern plains; but I have had experience of the last-named district in summer-time, and can say that there is no part of America that is more infested with rattlesnakes than the desert region north and south of the Snake River. There are other snakes of a venomous nature here too, and many other troublesome creatures, as, *e.g.* a poisonous spider, and an almost equally poisonous ant. The spider is large and long-legged, and so active that its form cannot be distinctly made out as it runs. The bite of this creature is painful, and causes much swelling of the tissue; but I do not know that it is at all dangerous. The swelling lasts for several days—perhaps a week or longer—and the pain is greater after the first day or two than at the time of the infliction of the bite. The spider is very apt to bite the faces and hands of men lying on the ground, and does so entirely unprovoked; but my first experience of it was a sharp nip at the back of the neck, the creature having run up the coat unperceived.

The ant is very apt to attack in some numbers, and if the victim receives many bites he is sure to suffer from a considerable degree of fever. These venomous ants harbour among the long tangled grass. They are about half-an-inch long, brownish in colour, and there is a species in South America which seems to the eye to be identical with it.

There is also a large wasp, or perhaps a hornet, which is not slow to resent interference with its intrusions and predatory habits. In warm weather this wasp would often fly into the waggon and forage among the sugar and jam pots, and it has even pitched on the meat on my plate and proceeded to carve out a little steak for itself. If left alone it would carry away a piece the size of a shirt button. If struck at and missed, the unsuccessful assailant was almost sure to be stung, so sudden and quick was the counter-attack; and the sting of this wasp is even more painful than the bite of the spider. It also greatly torments horses and cattle by attacking any sores it chances to find on them, and sometimes the poor animals are driven frantic by this troublesome insect.

It is singular that these venomous creatures, snakes, spiders, ants, and wasps, are enormously more numerous in the deserts than in the wooded mountains and grassy valleys, and it has puzzled me much to think why it is so. Prey seems scarce in such situations as they most favour, unless they feast on each other. It is probable, however, that at least the snakes and spiders go long periods without a meal. The spiders were very numerous here. In other parts of the West they prey on beetles and other crawling insects, and probably they find such creatures here. When seen they were generally running across the plain at a great pace. A stone or stick thrown in front of them caused an instant halt, and the affrighted spider would raise itself on its legs, evidently the better to reconnoitre. A second stone would set it in motion again, and it was quite as likely as not to run directly towards the aggressor; but this seemed to be the result of chance or stupidity, for it would go right by without attempting to resent the attack. It is difficult to place a stick on or before these spiders on account of their great speed, but if this were done they were more anxious to escape than to fight; they do not in this resemble certain South American spiders, which are always ready for a fight in spite of the desperate odds in favour of the man.

In no part of the West had I seen a greater number and variety of birds than in the valleys and wooded districts of Idaho, but I fear that it would be monotonous to give a list of species recognised, the greater part of which were simply noticed, as I did not remain long enough to note if there was any change of usual habit in this region. It may be mentioned, however, that the kingbird was seen twice, thus proving that many birds which are well-known migrants leave stragglers in favoured districts; and I know that Northern Idaho is a favoured region of the kingbird, as I have seen it there in abundance in the summer months. The same remark is applicable to the American robin, *Turdus migratorius*, which is perhaps the commonest bird in the territory. While most of them had departed by this time, there was still a fair sprinkling scattered over the face of the country. Both the robin and the kingbird are bold and familiar little creatures, often perching on and about the waggon in search of such crumbs as were always to be found there during a halt. If we halted, here or elsewhere, for several days at a time, quite a flock of small birds of many kinds would assemble every morning for the fragments purposely placed for them, and it was astonishing in how short a time they seemed to learn that they were perfectly safe from molestation when near our travelling home. Often there were more than a hundred perched on the top of the waggon, shaking and preening their feathers, and enjoying the warmth of the sun; and on our appearance some of these would fly down in expectancy of being fed. The men, I am glad to say, liked to see these birds about them, so that all day long a few, at least, were hopping about among the horses' legs and within a few feet of the workers in the hope of an occasional crumb.

Many birds that were thought to migrate entirely to the south at this period of the year had representatives here; and from this and much subsequent experience I am satisfied that the migration of small birds in North America is often only partial in some districts, that a few remain all the year round in others, and that in yet others migration is altogether uncertain, sometimes, as during unusually mild winters for instance, not taking place at all.

The scarlet tanagar (*Piranga erythromelas*) was another bird seen here, and among other well-known passeres the pine-grosbeak. Quails and grouse were in great plenty, as were ducks, geese, herons, birds of prey, and, in a word, nearly every bird inhabiting the Northern and Central United States is to be found here at some season of the year. There are some notable exceptions, however: particularly I never saw or heard of the well-known mocking-bird in this district, nor of the equally well-known bobolink, which at certain seasons passes through nearly all the northern States in huge swarms, insomuch that I have seen beds of reeds almost flattened by their weight when they pitched on them; and fellows with guns at such times destroy thousands, killing a hundred at a shot.

A small dark-green, and often blackish, snake, seldom exceeding 3 feet in length, is the commonest serpent in the wooded mountains of the north, where I never saw, or heard, of the rattlesnake, which is confined, or nearly so, to the dry desert-like plains of the southern part of the territory. It certainly hibernates, and the rattlesnake probably does so too, for I saw none on this winter journey. But the horned-toad was still about in some numbers, for it is a very common reptile in the Snake River district. A description of it has been given in a former chapter; but I may add here that though I have handled it scores of times, I never witnessed the extraordinary habit the animal is said to have of weeping tears of blood when it is in danger; in fact, and in spite of a good many apparently well-authenticated assertions to the contrary, I do not believe that the creature has any such power or habit. The rough, uncultivated miners say that it has; but then the same men are equally positive that the common toad "spits venom." The spines with which the horned-toad is plentifully besprinkled are a sufficient defence for it, as I have proved beyond doubt, for no snake will attack it. Owls, and one or two hawks, will kill it, but I have not seen them *swallow* it.

On two other points I shall have to disagree with accounts of this lizard (as it certainly seems to be, and not a toad, as it is popularly called). The first is regarding its speed. I read of its running with the speed of an ordinary lizard. It does nothing of the kind. A quick walk, which cannot be correctly described as a run, is the greatest speed the creature is capable of; and if it is surprised a few feet from its hole it cannot escape from the capturing hand. If it is handled with care the spines do not injure; and the animal is as inoffensive as any that breathes. The holes it dwells in are natural cracks in the earth, hollows under stones, etc.; in fact, the habits of the *Phrynosoma*, as it is scientifically called, do not seem in any way to differ from those of the common toad.

Don't you
believe it

There are said to be four species of the *Phrynosoma*. One local variety has a shorter tail than the others. I have observed no other difference.

We got so expert (*or careless*), horse and man, in crossing cañons, gullies, and the like, that at length we drew the line too fine, and met with a bad accident.

This was at Antelope Creek, a small fork of the Big Lost River, and in the neighbourhood of one of the most important mining localities in Idaho. The creek runs at the bottom of a nasty-looking gulch, but we found a place that looked no worse than a score of bad places passed elsewhere, and made the attempt. Providentially we took out of the waggon three tons of the heaviest stores, and unhooked all but four of the horses.

The start was satisfactory, but when the waggon was half-way down the gully, one of the leaders stumbled, the other horses went down over each other, and the waggon crashed through the struggling, sliding animals, turning completely over twice ere it reached the bottom. The sight was heart-rending. One horse was killed instantly, another had its back broken, and the other pair was badly cut and bruised. Everything in the waggon that would break was broken, and the waggon itself badly damaged. The one piece of good fortune was that it lodged clear of the water, and we managed to get it upright in the gully; and after replacing one of the wheels with a spare one which was carried as a measure of precaution, and mending the others, the ascent on the other side of the creek proved to be comparatively easy. But we were delayed two days making repairs before we could resume our way. A day or two later, with the assistance of some mining mechanics, we made the waggon thoroughly firm; but the loss of stores was a serious matter, and it was long before I had the opportunity of replacing them.

The Big Lost River is one of those that disappear in the sinks characteristic of this region. It is reputed to run a long distance underground, but I had no opportunity of confirming or disproving this opinion of the miners. I, however, ascertained that there are streams in this desert region which have an underground course, for the water was seen running at the bottom of cracks in the earth.

The desert plain is much intersected with these cracks or crevices, running (in some districts, at least) at right angles with the rivers, and I considered them to be embryo cañons. The evidence on the spot is decisive that many of them become cañons. They are of all widths, lengths, and depths, from that of several feet to several miles, roughly speaking. Of course they are not miles in depth, and those that are miles broad are not properly canoñs, but as there are all gradations of size between the two extremes given, the expression will enable a notion of the nature of the country to be formed. Some tracts that we passed through were so dangerous that all movement had to be avoided as soon as the dusk of evening came on. In spots where these crevices lay across our path, the labour of travelling was excessive, as all those more than a foot or two wide had to be headed, or travelled round.

I measured the depth of a few of those which appeared to be deepest. There were some 400 and 500 feet deep, and not more than 30 or 40 yards across. Most of these had water running at the bottom, and were, therefore, over underground watercourses. In no case does still water collect, as there is scarcely a rainfall in this desert — certainly never more than 5 or 6 inches per annum. The lesser crevices are generally 50 or 60 feet deep, and only 5 or 6 wide, though they may be a mile or more in length. I could see, in the shape of bones and skulls, that animals sometimes slip into these fearful cracks, where they must perish of hunger. Some were so narrow that the creatures had become wedged before reaching the bottom. The skeletons of wolves, foxes, prongbuck, and a deer were so seen, having probably fallen in during their chases or attempts to escape from their enemies. Reptiles also had perished in great numbers; but I have seen some of these crevices containing a large number of living serpents which could not escape, and probably subsisted on each other, or on batrachians and small mammals which became trapped like themselves. These fissures, being too large and numerous to be filled up, will probably prevent this country from ever being inhabited, or turned to account; it is, in fact, far more worthy of the name of "Bad lands" than the district of Wyoming so called.

I do not dwell on the features of this State, which resemble those of others which adjoin: but of the many streams which lose themselves in sinks, as in Oregon, Washington, etc., I noticed one which displayed some variation from those previously described. This was a brook of no great width or length, but containing a considerable body of water, which rushed into a crevice 300 feet deep and disappeared from view. There were indications in the neighbourhood that this stream, when very full, branched off into several small forks, but I had not time to thoroughly examine the spot. Eight miles further on a large stream burst from under a huge rock at the bottom of a gully; and this was considered to be a reappearance of the brook just described. Some of the miners told me that it was in contemplation to turn the course of this stream that the water might be utilised in their works.

Having finished the repairs of the waggon and replaced the tent-covering, which had been completely smashed, we proceeded in a north-east direction and were soon among well-wooded hills again, where we found several beautiful little tarns or ponds, completely embosomed amid the trees, and swarming with ducks, mostly scaups (*Fuligula marila*) and pin-tails (*Dafila acuta*). As I know the latter species (and to a great extent the former also) is found all round the head of Hudson's Bay, and throughout the north-west territories, in summer, and that they are migratory in those regions, I conclude that this is one of the localities to which they come to pass the winter. But the pin-tails go much further south; for I have shot them during the winter months in Florida, and in Texas, and in many places in the Mississippi Valley. I think that migrating birds chancing to light upon a spot where food is plentiful, will remain there the entire winter if the food lasts; and that they go as far south as suits their purpose, and no further. It is entirely a question of food—the cold does not affect them in the least; and there are comparatively few migrating birds in America that do not leave a small percentage of their numbers in their northern haunts all the year round.

During the migrations, also, many prolonged halts are made; and I have noted—beyond the possibility of mistake—that many species, especially of water-fowl, arrive in their southern sojourning grounds in successive flocks almost to the end of the winter season. There are very few species which, like the swallows or martins and cranes, assemble in vast flocks before starting on their migrations; and fewer still which actually migrate in large bodies.

On approaching the borders of Montana we entered a long valley, running east and west, which was one of the most beautiful we had seen in the State. There was a considerable quantity of broad-leaved timber trees here which gave a charming contrast to the pines of the mountains which bounded the scene on either hand. These mountains appeared to be more than 4000 feet above the valley, and were of the usual rocky character. This district is now traversed by the road leading from the town of Beaver on the Union Pacific Railway, through Taghee Pass to the Yellowstone National Park, which we were now approaching with the intention of visiting it. The description of this region belongs to the account I intend to give of Wyoming Territory; and I must again interrupt the main journey to record what was learned about the territory of Montana.

The road in question runs round the northern half of Lake Henry, on its very shores and close to the water. This lake, an exceedingly beautiful sheet of water, 6 miles long by 3 broad, ought, in my opinion, to have been included in the Park. Its outlet is the north fork of the Snake River, and it is quite possible that it will ultimately turn out to be the real source of that roaring, tossing, most unruly stream. It is only 10 miles from the boundary of the Park, and the country around it is of the most charming description — or was. But I will speak cautiously until I know how much of the timber remains untouched.

We crossed into Montana by Reynold's Pass, and entered the cañon of the Madison River.

CHAPTER V

MONTANA

The Madison rises in the Yellowstone Park, and flows due north at the bottom of a cañon with almost vertical walls 5000 or 6000 feet high; but snow-capped peaks, which look to be double that height, loom in the immediate neighbourhood, presenting a magnificent sight, in the beautiful clear expanse over our heads. The remarkable clearness of the air, which has the effect on the eye of appearing to bring objects afar off almost within reaching distance, gives these mountains and peaks an appearance which is indescribable. The nearest approach to this remarkable appearance in expressed words would be that the rocks seem to float in the ambient air. We could almost imagine them slowly approaching us, as point after point became more and more distinct to the watching eye; not because any part of the view was obscure, but, on the contrary, because the whole was all so clearly visible that the eye could not take it in at a *coup d'œil*; a landscape effect that the artist will be able easily to realise.

The mountains here are much broken up into distinct, though not absolutely isolated, groups: in other words, the ranges, of which there seem to be several more or less quite separate chains, are not continuous. Streams of water are very numerous, and they mostly run in tolerably broad valleys—not cañons.

Many of them seem to overflow at some season of the year, probably when the snows melt, and the consequence is a highly fertile soil. There is cottonwood along some of the river valleys, but others are buried in a thicket of bushes, shrubs, and trees. On the mountains there are dense forests of pine and fir, and cedar, with some tamarack and aspens in the valleys, and a species of willow, and others of oak and maple.

Montana is the third largest State in the Union, only Texas in the south, and California in the west, exceeding it in size; but at this time there appeared to be, excepting a few miners in the hill regions, no white population. We nowhere came across farm or ranch, or could hear of any. There were reported, by some officials, to be 30,000 Indians in the State, who all wandered about the country hunting and fishing, and appeared [illegible] be under no white control whatever. We were cautioned against some of the tribes; but though we frequently met parties of those bearing the worst name, no hurt was done to us. The bulk of the Crows, however, have never been very friendly disposed towards the whites, and before we left the State, or territory, as it then was, we witnessed the execution of some of them for the robbery and murder of post-boys.

The most curious of the Indians of this region are the Flatheads, so called from a remarkable personal deformity artificially produced. A piece of board is strapped to the head of the young Indian child, with the result that the growth of the skull is aborted, and the line of the brow and crown of the head is made quite flat in a diagonal direction. The distortion is hideous, but the intellect of the individual is not in the least affected; and those Flatheads with whom we came in contact were intelligent and affable men.

Until quite recently the territory had been in a deplorable condition, a condition which most of the Western States have had to pass through in their infancy. Mob law had reigned supreme, and murder and open robbery had been the rule of the white population—rowdies from the Pacific States gold-mines, and loafers and scamps from the east, having forcibly taken possession of the government—if government it could be called. Men at the placer mines were openly seized in broad daylight, and their gains taken from them. If they resisted, they were Derringered or Bowie-knifed without remorse or mercy. The few soldiers stationed in the territory, most of whom were German ragamuffins, were engaged in watching the Indians; but when a small party of them came up in response to an appeal from the respectable portion of the miners, the rowdies set them at utter defiance, and so overawed them that, a spectator told me, he saw one scoundrel wipe his nose in the long-skirted uniform-coats of several of them, a deliberate insult they were too weak to resist.

This terrible state of things continued many months, and was only stamped out by a sharp application of Lynch law—one of the most effective laws ever invented by man—occasional little accidents notwithstanding. I am certain that a large percentage of the unfortunate people who find themselves in the "clutches of the law" in European countries are wrongly convicted, and suffer innocently, in spite of the solemn farce of prosecution and defence, learned counsel and impartial judges. Miscarriages of justice are, perhaps, inevitable; but I am convinced that Judge Lynch makes fewer mistakes than the gentlemen who sit in scarlet and ermine. And there is one unanswerable argument for his retention in office in the Wild West, at any rate: *the criminal classes do not like him.*

When the decent, hard-working miners of Montana were provoked to throw down pick and borer, and take up rifle and Derringer, they made short work of the rowdies. A great many of them were shot down in open fight, more were haled from the drinking-sheds—or "saloons," as the miserable shanties were called—and summarily strung up on the nearest tree, and quiet, safety, and order were soon restored. Yet a few rogues skulked in outlandish spots even at the time of my visit, and I have myself been constrained to take a seat on the Lynch-bench, though my brother judges were persuaded, in this particular case, not to inflict the extreme penalty.

Game is not so plentiful in the mountains of Montana as in Idaho, perhaps on account of the far greater number of Indians, though the large number of beasts of prey may have had something to do with the decreased number of deer, wipiti, and moose. Wolves were far more numerous in Montana than in any of the States previously described, yet we seldom saw them. Their howlings at night were sometimes heard afar and near—a dismal sound which made the horses restless, these animals having a strong instinctive dread of the wolf, and not without reason. For both loose and tethered horses are frequently attacked by hordes of these ferocious animals, which are fonder of horse meat than of any other kind of food, except pork.

I shot a puma in this region, and also a glutton, a far rarer animal, and saw the tracks of numerous wild cats, as the lynxes are here called. Bears were traced in some places, but these do not seem to be very numerous. The smaller animals of prey, such as martens and pole-cats, as well as musquash and stoats, almost swarm in some parts of the mountain forests; and there are the same kinds of fur-bearing animals as are found in the adjoining States and in the north-west territory of the British possessions. I met with nothing extraordinary in the fauna or flora of Montana, but think that on the whole both birds and mammals are scarcer than in any other western State, the greater part of whose surface is not of a desert description. The only animal seen here which was not to be found in the States hitherto described was the bison. Of that more presently.

The actual time of our visit to Montana was the summer season, but I have a sufficient knowledge of the territory to speak of the climate generally, which seemed to me to be one of the most changeable in the United States. Some of the valleys are warm throughout the year, or at any rate are only exceptionally visited by severe weather; and there are spots where it is said by the local inhabitants the snow never falls. But this is not the rule. Generally snow falls in every part, but not in very great quantities, nor does it often, if ever, lie long. I have known to-day to be hot almost to enervation point, and to-morrow a smart snow-shower to be falling. Blizzards are spoken of, but I never experienced anything of the kind, nor have I witnessed a continuous fall of snow. It falls in showers only, and it soon melts. The climate is very much colder than in the Pacific Coast States. I should put the difference at as great a contrast as that between the northern counties of

England and Cornwall. The rainfall is not so great, by fully half, as that of the region round London. There are, however, occasional storm-bursts of wind and rain of a very fierce character, and hail-storms which rival those of the Egyptian plague.

The only marked difference between the mountains of West Montana and those of the Cascade and Nevada ranges is, that there are not so many bare peaks and rocks. They are mostly clothed with pines to their very summits. These trees are, however, quite diminutive in size when compared with the giants I have previously described.

The contrast between West and East Montana is as great as it could well be. The mountain ranges cease almost suddenly, and we enter one of the levelest and most monotonous prairies to be found in North America. The mountains present a grand appearance when viewed from this prairie, and can be seen for a long distance; but when they have sunk in the horizon there lies before the traveller a plain, tame in all its extraordinary sameness. Seated on a horse a man can see for perhaps five miles in every direction. There is much confusion of idea among inexperienced persons as to the range of vision, and we hear and read of views over a 40 or 50 miles' expanse of plain. Such a thing is not possible. It is only from elevated ground that long views over a flat country can be obtained, and it is only objects of height, more or less, that can be seen afar off by a spectator on the level. Four or five miles is the extreme range of vision on a level country.

There are no trees, except occasional odd ones, on the Montana prairie. Here and there one meets with a butte which sometimes rises to the dignity of a mountain, and these buttes are timbered with pines in the reverse order to that usually observed on mountains. For the lower slopes are bare, and the summits woody, but often sparsely, and never, in my experience, densely. Even the ravines are bare, or only grass-covered, which is most unusual—bushes, if not trees, generally taking advantage of the protection afforded by depressions and gullies, to grow and prosper.

The usual odd trees, most of them dead, are met with; but I have ridden an entire day without seeing a single tree. Many of them here, as elsewhere, contain a hawk's nest, while the smaller birds which breed on the prairies are, perforce, perhaps, compelled to choose such sites as holes in the river's banks and faces of the bluffs; many species which are known to build in trees and bushes in other parts of the country here nesting in holes in the ground.

On the whole, the prairie is well watered, and the brooks and rivers numerous; but they cannot be seen by the traveller until he is close on them, for they all, or nearly all, have banks with deep bluffs, and the passage of them is often a dangerous operation—for the beds of many of them are full of quicksands of a most treacherous description. Once fully in one of these traps, the fate of man, horse, or waggon is inevitable. One would pull a horse asunder before extricating him; and the stories told by Indians, and others, who have witnessed accidents in the crossing of these treacherous rivers, are of a character to make the heart shudder. The courses of the rivers are usually marked by a growth on the banks of cotton-wood and bushes, as is almost invariably the case in all the States of the West.

There are no lakes on this prairie, nor does water ever seem to collect in temporary pools, the rainfall being probably too scanty to form ephemeral ponds. There are few birds on the plains, or at least they keep themselves well hidden. We saw large flocks of crows, reminding us of the rooks of our native land; but they were not sociable, and did not come near us. And martins were breeding in great numbers in the banks of some of the rivers; and in company, like the sand-martin. I do not know if this was the common purple martin; its species was not ascertained. Vast flocks of ducks were seen high up in the air, passing from some distant point; but the only bird which came near the waggon was a small brown finch, which we now and then saw in pairs or in small flocks of half a dozen in the grass near us. It was pleasant to have such a tiny companion in the wilderness; but its habits were not very interesting, and its note simply a few sharp cries and twitters, which gave us the impression of its being an irritable, discontented little thing.

Of big game we saw but a single herd of black-tailed deer, until we met the buffalo, or bison, and joined with a party of Blackfeet in a hunt after them.

The Indians were seen one afternoon coming up on the horizon, and gave us no small anxiety, as they numbered nearly sixty. Of course, they saw the waggon and came straight for it, riding up with a chorus of "How do, brudder? How do, sir?" I must confess that our scalps had an unpleasantly creepy feeling, which was not relieved when we found that the Blackfeet had made up their minds to camp by us for the night. However, there seemed no reason why they should delay their attack if they meant mischief, for successful resistance on our part was out of the question. By and by, when the fires had been lighted, one of the chiefs came to talk with us and to see if we had any powder to sell.

We had but little to spare, but I gave him a couple of pounds, and soon became satisfied that he and his men were peaceably disposed. Indeed, they were themselves somewhat ill at ease, for Eagle's Wing, as the chief was named, said that his party had followed a herd of buffalo into Crow territory, and he expected trouble if they fell in with any of the latter tribe. And, no doubt, there would have been trouble in such a case, but the Blackfeet were compelled to risk it, as they had been short of food recently. The chief was also very anxious to know if we had seen any soldiers in the neighbourhood, and was evidently relieved in mind to learn that we had not. So we suspected that he and his party had been on a raiding expedition independently of the violation of the Crow hunting-ground.

Eagle's Wing was well-armed, and among his weapons was a heavy six-shooter which, I noticed, was marked with the name of a trooper in the 4th United States Cavalry; and among the seven or eight scalps which hung at his belt was one which had belonged to a curly-headed man of Saxon breed—perhaps the owner of the six-shooter. However, as the chief was as friendly as he could be with us, it was clearly best to appear not to notice these gruesome records of past tragedies.

These incidents occurred several years before the outbreak of the Indian troubles which led to the series of fierce fights between the United States' troops under Custer and others, and the Red Men under Sitting Bull; yet there were already indications that the latter were discontented, and more than once afterwards we were told by the people in adjoining States that our escape from molestation during this lone journey across

Montana was little short of miraculous. Perhaps it was, but I have always been singularly fortunate in my dealings with the Red Men.

Eagle's Wing invited me, the following morning, to join his warriors in the buffalo-hunt which they expected would take place that day. They had been following the herd for some time, and had already attacked it several times, and it was now known, from the state of the tracts, to be again in the immediate neighbourhood of its pursuers. As I had never witnessed an Indian buffalo-hunt, and was anxious to do so, I resolved to go with them.

A smart canter of 20 miles across the prairie brought us in sight of the bison, at a spot somewhere near the head of the Porcupine Creek. About 40 head were at first visible; but presently another small herd came in sight, and then another, and another, until we counted about 500 head, scattered about the prairie in parties of 8 or 10 to 40 or 50. Although we had come up against the wind, and bisons, like bears, are short-sighted animals, they soon became aware of our approach, and began to move quickly away. Part of the Indians had previously made a detour, and drove the bulk of the bison into a fork between two streams, which they were compelled to cross; and as they had a number of calves with them, this caused them some delay, and enabled us to come up with them. I was surprised to witness the speed of this seemingly ungainly animal; and though a horse can overtake it, it must be a good one if the rider is to enjoy the sport of buffalo-hunting.

The Indians, to the number of about a dozen, formed a compact squad, the others spreading themselves out like skirmishers, with wide intervals between the men.

Then the closed party galloped at full speed among the herd, causing the wildest confusion, and driving the affrighted animals in all directions. The Indians then scattered, and each hunter selecting an animal galloped after it, until an opportunity occurred of placing himself on its flank, when it was shot in the head or heart, according to the weapon the Indian used. All the party possessed firearms, but ammunition was short among them; and either for this reason, or as a matter of preference, some of them used the bow and arrows. I was astonished to see shafts more than 30 inches long driven home to the feather. The stricken bison seldom fell at once, and not infrequently, on feeling the prick of the arrow, turned fiercely on the assailant, whose skill in avoiding the charge of the enraged brute was most ably seconded by his well-trained horse. I only escaped by a hair's-breadth several times, and owed my good fortune entirely to the training of my little mare, though I was not aware that she had ever been used in buffalo-hunting at the time of her purchase. I am no horseman, and much excited the contempt of the Indians until I explained that my infirmity prevented my riding with the dash and daring customary in these wild lands, when they expressed their sympathy with many a "Ah! bad job! bad job!" which, in truth, it was.

The six-shooter was more used than the rifle, the charge of this heavy weapon being equal to that of a carbine, and, if the shot is well directed, hitting hard enough to drop a bull on the spot. It is easier and safer to handle than a rifle when going at full speed; and, as the muzzle is placed close enough to the flying bison to singe the hair on discharge, misses are very few, and a single shot usually suffices to do the deadly work.

With arrows it is different. The shaft probably blocks the wound and prevents bleeding, and three or four, and sometimes five or six, arrows are shot into the poor brute's carcase before it drops. I noticed that those bison which were shot with arrows ran a quarter of a mile, or more, and when they stopped trembled violently, then dropped on their knees, and after a little time rolled over and died. A few rose and ran a short distance further before finally dying. The arrows were not poisoned—at least the Indians said they were not.

The hunt, which was very exciting, lasted about two hours, by which time everybody had pretty well tired out his horse, so sharp had been the pace. Eighty great carcasses lay on the plain, scattered over a tract 10 miles square, and the rest of the day was spent in flaying these and cutting up the meat. We camped at night on the spot where the slaughter had been greatest, and the evening air was pervaded with the delicious odour of frizzling buffalo steaks and humps—the latter being considered a great delicacy, as, indeed, it is. That night was much disturbed with the howling of wolves, and strange cries of beasts of prey; the sounds now and then seeming to indicate that they were fighting among themselves, though there must have been meat enough to feed hundreds of them. The fires prevented them from coming near the camp; but several of the Indians crept silently out with bow and arrow in hand, and by and by returned with half a dozen wolf skins and a glutton.

At sunrise I perceived thousands of crows hovering over the carcasses, besides several kinds of hawks and other birds; but the wolves had all slunk away before dawn, though a few foxes hovered about, concealing themselves in the tufts of herbage when a man approached within 200 or 300 yards of them; while the crows rose in a cloud and went off to a more distant carcass.

I was surprised that the Blackfeet, being in an enemy's country, used so little precaution in firing their rifles, and making numerous fires in their camp; but I discovered afterwards that they had scouts out in all directions for many miles around, and in the morning a fresh party came up with pack-horses and carried away several tons of the best of the meat. I concluded, therefore, that there was a squaws' camp in some well-concealed spot, and that they were engaged in drying a supply of meat for winter use. The whole party went off northward before noon, having probably heard of buffalo in that direction.

According to what some of these Indians declared, the herds of bison in this part of the country never exceed a few hundreds, or at most a thousand, in number, and the stories I told of the immense herds I had seen in the eastern prairies were, I fear, scarcely believed. Subsequently I saw more bison in this territory, principally between the great fork of the Yellowstone and Missouri; but none of the herds contained 500 animals. The herds were always very much scattered, being broken up into family parties, each under the leadership of an old bull, according to the common habit of the animal. In the large herds of the East, numbering, even at this time, tens of thousands, the families kept much closer together than here in Montana, where a couple of hundred bison were seen scattered, in tens and dozens, over a 20-mile tract. Here, too, occasionally we saw solitary parties of four or five to twenty, and even solitary individuals, possibly animals that had been driven in mad terror quite out of the run of the herd. The Indians were evidently much persecuting them just now, and we never saw even a small herd unless we came up to it against the wind: a proof that the poor animals winded us, and made off, long before we came in sight. The bison has to depend on its acute sense of smell for safety, for it cannot see a recumbent man a hundred yards off. This is the reason, and not the reputed stupidity of the bison, that the "still hunters," or stalkers, succeed in getting up to it without difficulty, and shooting down animal after animal. The bison seems to suffer from dulness of hearing as well as sight, for the report of a rifle does not startle it much—it would be more correct to say, did not; for in the later years, before its final extermination, it learned the meaning of the deadly crack of the rifle, and a single shot would occasion a wild stampede of a whole herd.

After the departure of the Blackfeet we were in some trepidation for fear we should meet other Indians of less friendly disposition. The Red Men, taken as a whole, are the very reverse of what they are represented to be in certain writings—"scientific," and American writings especially. The first class of books describe him as he ought to be, if learned theories are correct; the second class takes the same stand on the Indian question as it does on that of the negro. He is *there*, and national responsibility cannot altogether be shirked; but it would be a good thing for the country if both red and black could be got rid of without deliberate extermination.

The Indian is represented as beastly in habit, and treacherous in disposition—the truth being that he is precisely like the white man—just what circumstances make him. The American politician and sociologist say "Hum!" and "Ah"; he is degraded and will never make a citizen, he is treacherous, dirty, slovenly, and idle, a brute to his women, and false to his undertakings; the scientist says this tribe cannot conceive any number greater than unity—and that can count up to a million. The proper answer to both is—Fudge! The man who writes that the Indian is treacherous, *except to his enemies*, knows nothing about him except what he has gleaned from second-hand information. Bill Smith and Tom Jones often appear in American police courts, as their brethren in brutality do in English courts, for gross cruelty to their wives: show me the record of a single conviction of a Red Man for this offence, and I will throw down the pen at once and confess that I am in error—*an authenticated* conviction mind. I am justified in making the qualification, as I have learned sufficient of the tricks of a certain class of critics to know that they are not above the meanness of making impudently mendacious assertions.

An Indian does not shake hands with a man, lie down in the same camp with him, rise up in the middle of the night and murder him; and the author who says that he does is a writer of fiction, not of history. To lie to one's friend is a vice so common that there is scarcely a white man in any country who has not been guilty of it—it is the rarest of all offences among the Indians, and one that stamps the offender, even among his own kith and ken, with indelible infamy. Under provocation, when his fierce passions are aroused, the Indian is an atrocious scamp; under the like conditions, and with no immediate fear of the noose before him, the white man is also an atrocious scamp: far meaner and more implacable than the Red Wolf.

Treacherous? The fact is history—contradict it who dare. Those tribes who have been the most inveterate enemies of the white man have consistently been so from the earliest days of the settlements. They have never temporised for a day: the war hatchet has never been buried. Those tribes, as the Crows, Blackfeet, Apaches, Mohicans, and a dozen others, fought until they were reduced to handfuls; and those handfuls have ever refused to extend the hand of friendship to the white man. They have never done so: though individuals, like myself, may have found forbearance and kindness at the hands of certain tribes of them. Enough. It is clear that the subject cannot be adequately dealt with in a few paragraphs; and it will suffice to conclude now with this assertion. The Red Man is the prey of no vices that are not found fully developed among his would-be perfect white brethren; while, on the other hand, he carefully nourishes and cultivates a good many virtues which require a great deal of searching for in civilised communities.

Some of the buttes and ranges of hills in Eastern Montana are picturesque and pleasant to look upon; but as better examples of this kind of formation must be described elsewhere I will not waste time by pausing before them now. As I have said, the plains, taken as a whole, are among the most monotonous to be found in North America.

All the rivers, those at least that I saw, are navigable, and falls and rapids are very exceptional. Of the Yellowstone I saw but little; and the Missouri, within the bounds of Montana Territory, is a monotonous stream. The current is swift, so much so that I expected to find rapids on it, if not falls. [It must be remembered that at this time the ground was new to me, and I never "read up" a region before exploring it: preferring to enjoy the delightful sense of surprise born of suddenly coming upon the natural wonders of the land. Besides, this plan left my mind perfectly free, and is probably the cause of that independence of style natural to me, and not assumed, which seems to have caused some irritation to a few of my reviewers, which is a pity; for no intentional aggression is intended.] And the waters of Missouri are not a pleasant sight, resembling in tint, particularly badly-made pea soup. It is, however, by far the widest and fullest river I have yet described in these pages; and in spite of its lack of picturesqueness, it is impossible to look upon its rolling waters (just the fit phrase in this case) without being impressed with the majesty of its vastness.

The appearance of the banks varies a little. There are groves of trees, particularly cotton-wood, poplars, and other trees, probably grossly misnamed, any tree or plant resembling those found in the old States, old country, or any country, for the matter of that, being promptly named after it. The Memphises, Athenses, and Romes are only one class of creations, natural or artificial, which is absurdly nomenclatured: but then it must be remembered that the first explorers, and also city founders, of inland America have generally been bold trappers and miners, who have led far too busy a life to acquire much book-learning—though there are many exceptions, all honour to them; and roughness and want of education are not sufficient grounds for treating with contempt, or hastily changing the names of things or places which have received monumental designations from brave fellows who discovered them through much hardship, if not through much peril.

Long lines of bluffs mark the river bank in many places, and the banks are almost always tolerably high within the fork alluded to above. In no part of this lower section is either the Missouri or the Yellowstone crossable except by ferry, and ferries were as yet so few that one generally had to travel 400 or 500 miles to find one. The Indians are said to swim their horses over. This, no doubt, could be done; but we should not have cared to attempt it except as a last resort. Our crossing took place at the frontier station of Fort Gilbert on the Yellowstone; but I am anticipating a little.

Some of the buttes form ranges at least 50 miles long, as for example the Mountain Sheep Bluffs, so called by the trappers because the wild sheep is said to be found there. I obtained no exact information about these hills, but if by the "wild sheep" referred to the big-horn is meant, I doubt its presence in these isolated rocks. I was anxious to shoot a big-horn, an animal which I have pursued more energetically and with more disappointments than any other kind of big game on the American Continent, so I devoted two days to a search of these bluffs, during which I visited almost every part of them. The only large animals I saw was a couple of grizzlies, and these disappeared before I could get within range. Further eastward, at Jack Morley's Bluff, a big dark-coloured mass, 10 miles long, and within sight of the Yellowstone, I saw a small herd of mountain goats, and these I stalked for five or six hours, leaving my mare hobbled in a ravine. Utterly wearied out by the provoking movements of the goats, I at last tried a shot at a 600 yards' range with a Minie (Enfield pattern) rifle. The result was exasperating, and I made the best of my way back to the waggon, hoping that my shot would not prove doubly unfortunate by attracting the attention of wandering Crows to us. These Indians must have collected for an expedition of some kind, or were watching their enemies the Blackfeet, for we journeyed quite 300 miles without seeing a single soul of any race.

I have never seen the celebrated "Great Falls of the Missouri," and therefore cannot describe them. I know from hearsay that the waters of all the rivers in this region are generally low in summer, and some tolerably big rivers dry up, or partially so. The time of my visit must have been during an exceptional season; at any rate, there was plenty of water in most of the big streams. The Missouri is always a great river.

The reader will kindly remember that this chapter is the account of a separate journey. He will not therefore be surprised in the next paragraph to find us back in the south-west corner of this territory, which it was necessary to describe as one of the "Eleven Eaglets."

CHAPTER VI

WYOMING

I PASSED the winter at Bozeman Settlement (not a county-capital as yet), for the Yellowstone park is a closed region in mid-winter — at least, I have never heard of any individual so madly in love with peril and hardship as to attempt to explore it at that season of the year.

Yesterday when I took up the daily newspaper my eye fell upon an advertisement of a "personally conducted" tour which is to visit, in the course of the coming summer, the wonders of the "Far West," including the Yosemite and Yellowstone National Parks! That which I visited at the peril of life and limb is to be enjoyed, in well-appointed and carefully driven carriages, by easy-going visitors, who will each night lodge at a luxuriously furnished hotel. I forget whether the Yellowstone region was yet set aside as a national recreation ground, or whether Congress had got beyond the initial discussions of the proposal; but there were not yet any park-rangers, any hotels or troops of cavalry at the Fort, and, in a word, the great geyser region was absolutely a lone land, insomuch that during the month I spent there the two souls of my party were probably the only individuals within what are now its marked and strictly defined bounds. The Yellowstone Park has become, too, a somewhat hackneyed subject; but I cannot describe Wyoming, and neglect to notice the central light of the State; besides, I think that there may be a new way of singing an old song, and the varied accounts of the district I have read are convincing proof that the chameleon does not show the same colours to every traveller.

A word or two to those who may anticipate a visit to this country, which is one of the world's sights which every person should see. The Park is, roughly speaking, a parallelogram about 70 miles by 60, and there are only two routes to it which are at all convenient for ladies and citizens "goodly capon-lined." The first and most used is the branch line of the North Pacific from Livingston Junction to Cinabar, which is only 2 or 3 miles from the Yellowstone Fort entrance to the Park. Stage-coaches run from Cinabar to the hotel close to the Fort, where it is presumed visitors will put up previously to exploring the Park. All fire-arms must be left at the Fort, as shooting is strictly forbidden; and it may be as well to mention that the picking up of minerals or curious deposits at the springs, or stalactites, etc., is an offence which is severely dealt with by the police authorities. You may roam where you will, look at and examine everything, but carry away nothing, not even a leaf.

The second route is from Beaver, on the Union Pacific Railway, to the Great Geyser basin, where there is also a hotel. It is a much longer stage-coach ride, but the road is through much grand scenery, which it is a pity to miss, especially as, being outside the limits of the Park, it is almost unknown, and is not seen by one person in a thousand of those who visit this region. The hotel being in nearly the centre of the Park is the most convenient spot from whence to make excursions on all sides.

My visit was under circumstances which no modern visitor can enjoy. I went forth fully armed, with one attendant leading a pack-horse, camping where I would, shooting what I liked, and more of an absolute master of the land on all sides of me than any monarch is of his realm. There had been recent explorations of the Park, and people in the neighbouring regions were more or less excited about the reported wonders of the tract; but as yet the place was one of the most deserted and solitary in all America. Indians had penetrated some little distance, and affrighted at what they saw, had hastily withdrawn, and told, with awe-struck countenances, that this was the haunt of evil and spiteful spirits who must not be disturbed, and the white men had glanced the one at the other with satirical smiles and exclaimed "Did you ever hear such superstitious fools?" Then the brave trappers came hither, and found new fields for pelts and adventures, and returned with mouths full of marvellous tales, to meet with the usual reward of first explorers. Men laughed aloud in their case, and exclaimed, "Did you ever hear such monstrous liars?" This is no over-tinted picture. The wonders of the Yellowstone were known to, and reported by, a few bold Indians, and many trappers, for several generations before the denizens of the civilised portion of the country would believe, or even thought it worth while to explore for themselves, and test the truth of the stories they scoffed at.

Leaving the waggon and horses at the farm where I had passed the winter, I rode along the valley of the Yellowstone River, a stream which was now very full, and ran at the bottom of a cañon, with walls 3000 or 4000 feet in height. I arrived within this region full early in the year. The ground was still covered with snow, although it was rapidly melting, and the first remarkable thing I noticed was the great fall in temperature, which compelled us to wear fur-lined coats and boots. It is the great elevation of the tract, so it is said, which causes this unusual cold, though we had experienced nothing like it in equally high regions further west, and are disposed to think that the Yellowstone region (popularly called "Wonderland" in the United States) is one of the coldest spots west of the Central Plains. There is not more than a hundred summer days annually in the Park. Spring and autumn there are really none, therefore there is a nine months' winter.

Wandering up and down we several times had to turn back on account of the impracticability of the ground for mounted men, and at length, following the course of what is now known as Gardiner's Creek, we came to the Mammoth Hot Springs. These gush from a great white hill formed by the repeated deposits of ages, but the hill is seamed in the most extraordinary manner with broad streaks of different colours—crimson, purplish, buff, bright yellow. The effect is that of vast quantities of paint having been poured down the hillside, and such as no artist would dare to imitate in a landscape. It does not look natural, and such a hill seen in an inhabitated country would be supposed to have been disfigured by the discharges from a dye, or chemical, works.

The steaming water of the springs pours from the top of the hill, which is really an enormous cone built up of the sediment from the strongly mineral impregnated waters. The sides of the hill, however, are formed by a vast number of most remarkable shell-shaped basins which catch the water, and from which it overflows from one to another until it reaches the base of the hill. Anything more extraordinary, and at the same time beautiful, than these basins, which are built up of deposit, it is impossible to imagine; nor have I read or heard of anything similar in Nature in any other part of the world. The cups, or basins, are scalloped round the edges, giving them the likeness of huge cockle-shells; and round the margins, and about the interiors beneath the waters, are singular deposits, of many different hues, resembling petrified weeds and plants. The water, notwithstanding that it is strongely alkaline, is so clear that the bottoms of the deepest basins are not in the least obscured. A pin, if dropped into the water, can be seen lying on them. The water itself, from reflecting the sky, appears of a most charming blue tint, and is of different temperatures, from quite cold and lukewarm, to a considerable degree of heat; but none that we tried were too hot to bear the hand in. The person of sure foot, and who is willing to run the risk of the thin deposit giving way under his feet, may walk about among these basins with the water flowing down on all sides of him, and examine them at his leisure. There does not seem to be much danger, as none of the basins contain a great depth of water—most of them 4 or 5 feet, and some only a few inches, though there are two or three larger pools near the top which are deeper, one of them containing about 30 feet of water.

Some of the basins are dry, the sides having given way and permitted the water to escape, and some are hollowed out underneath so that it is possible for the explorer who cares to try such experiments to walk or wonderful colouration of the rocks. When I recall the astounded astonishment which the first sight of these Rainbow Rocks, as they should be called, excited in my mind, I feel that I should not be too hard on the people who disbelieved the original accounts of this marvellous mass of natural colouring. There are acres upon acres of it on the side rocks, crimson, purple, green, yellow, orange, bright scarlet; not dingy, weather-worn tints, but each colour as glaring as fresh paint. The sight justifies the Indian notion of enchantment, as the witnessing of the threatening horrors of the Great, and Mud, geysers, does of his idea of wizardry. It is wonderful beyond description. I almost fell from the saddle in my absorption and forgetfulness of surrounding objects on contemplating the marvel. Officers and men had been here, surveying and exploring; but I knew it not at the time, nor had their reports reached, at first or second hand, my ear. I was not prepared for the sight of the Enchanted Rock: and the whirling, excited rush of the sublimest mind-feeling the human brain can experience, that of the first discoverer of the marvellous, was mine. Walking to the very edge of the cliff, in utter disregard of all minor perils, I sat on a rock, and revelled for hours. "For heaven's sake, do not speak," was my impatient exclamation to my companion; the poor man said afterwards that he thought he should have died in his fright, as he was sure that I had suddenly lost my reason, and the horror of the situation in that lone spot was too much for him. If his assurance is to be relied on, I sat there for hours without moving or speaking: it seemed to me but a few minutes. He may have been right, for I have had similar experiences on other occasions. The scenes of Nature affect me as music and love affect some men—I become oblivious to every passion but the one joy of the soul.

But there was more than colour here; there was form as well. Were ever rocks so wonderfully varied in form! Here, had one fallen over, he would have dropped amid a forest of needle-like, upward-pointing pinnacles; there it looked as if a sheer fall of 1000 feet would shiver the puny body of man or horse into minute fragments of mangled bone and flesh. Here the rocks were bare, naked, threatening; there were hid in a tangled mass of nodding pines and twining roots, on which a tiny bird perched and twittered, seemingly oblivious of the frightful chasm beneath its little feet. And could I stop in the mighty whirl of mind-joy to notice a creature so minute! Ah! that tiny creature was *the* point of light in the mighty landscape, and I would as soon have shot a man as have made "a specimen" of it. So, alas for science! I cannot say certainly if it were a rock-tit or a chippy.

One prominent feature of the rocks of this district is the stupendous cliffs which often cap them, but this is a characteristic of all the Wyoming ranges. On the top, and even sides, of many of these cliffs there are singularly weathered chimney-pot rocks, and isolated monolithic pillars which often look as if they had been carved out by human hands. Some of these are of basaltic formation, and resemble with great exactness the columns supporting the roofs of Greek and Roman buildings. Such resemblances, while singular enough to arrest attention, were not, however, among the greatest attractions of the district to me. I was far more interested in the "soda-mountains," as they are called. The celebrated Mammoth Hill Springs described above is of this formation; but while there are many other hills of a similar kind from which hot water and steam is emitted, the first-named is the only one that I saw furnished with the curious scalloped basins mentioned in my description, though there were traces on some of the hills of such basins having formerly been there. The water having ceased to flow, the basins seemed to have gradually decayed and crumbled away. Where water was now flowing very curious channels of a different shape had been formed, and sticks and herbage were encrusted with a coat of deposit which had transformed them into petrifactions. The ground about these soda-hills was generally a warm mud full of little volcanoes, which were bubbling and grumbling with a hollow noise, every now and then blowing out a dab of mud with a dull explosion. The little cones formed round these mud volcanoes were scarcely more than a foot or 18 inches high. Some of them made their discharges rhythmically with the greatest regularity as timed by a watch. Near where we camped there was a cone, which for many hours threw out a dab of mud the size of one's head every minute and a half. Towards evening it ceased to act, and was quiet when we left in the morning. Two days later we returned to pass the night at the same spot, and found the cone again active, making its discharges every ninety seconds with the regularity of clockwork.

At this spot there was a spring so hot that we could cook our food by suspending it in it, but the water was medicinal and could not be drunk. We often had difficulty in finding water which could be safely drunk, most of the streams being more or less impregnated with mineral matter, and several of them containing water which was quite warm.

In some places the geyser tracts were wet and muddy and full of small pools; in others the ground was hard and had a baked appearance, being full of cracks and holes, some circular, others irregular in shape. Steam came in angry puffs, in jets, in continuous streams, and intermittently in all sorts of ways from both holes and crevices, from cones and from mere depressions. Some of the hills were steaming, but the ground felt so crusty and unsafe under foot that we did not care to ascend them. There were big hollows in the sides of the hills emitting gases which stank horribly; and there were also strong sulphurous smells which were quite stifling in the neighbourhood of some of the volcanoes, for such I suppose they may be correctly termed, notwithstanding their small size. The deposits were often lapped over in such a way as to form arches and caves; and in some of them which I ventured into, the walls and roofs were encrusted with an inflorescence of sulphur, very beautiful to look upon, but repulsive with a stench which I think must have originated from more offensive matter than sulphur.

I had heard of the Great Geyser, and of this we went in search. Its crater is surrounded with a hollow cone 20 feet high, with a huge rent in one side. As the geyser seemed to be perfectly quiet, I cautiously approached, climbed up the rent and peeped in. A repulsive-looking well about 10 feet across at the mouth, and down which I could see not more than 5 or 6 yards, was all that was visible. The sight was an awe-inspiring one, and as it occurred to me that if a sudden eruption took place, I should probably be instantly destroyed, I soon retired to a safer distance. I was very anxious to witness a display of this great fountain, but in this I was disappointed. During the three nights and days we were near it, I neither saw nor heard any signs of an eruption of this particular geyser. Others, however, were very active. I saw a dozen large jets, quite separated from each other, shoot to the height of 20 or 30 feet from a single orifice. At another spot a pool of water, 25 or 30 feet across, attracted attention by the clouds of steam rising from its surface. Huge bubbles rose and burst, and then the water began to boil, rising in lumpy waves a foot high; and scarcely had I retired to a safer distance ere it rose in a great column 50 or 60 feet in height, deluging the adjacent ground with hot water.

There were several other geysers which, like this one, had no cone round their orifices, but were either level with the ground or sunk in wells below the surface. Some boiled and fumed a long time before they spouted; others, like some of the mud-geysers, erupted at regular intervals. Others, again, were discoloured with some mineral which tinged the water a deep blue colour, and there were some which discharged a peculiar-looking scum of varied tints, and which seemed to be of bituminous origin.

So varied was the action of the many springs and geysers of this region, that it is impossible to describe them all. Some spouted jets at intervals of one or two seconds, like some great artery; some at five minute periods, and so on, a few spouting once an hour. Others probably only erupted at daily or weekly intervals.

A river along whose banks we rode in the geyser tract is, I presume, that now called the Fire-Hole River. Not only the banks of this river, but its very bed, are occupied with steaming cones; and in several places we saw the smoke coming up from beneath the surface of the stream, which also bubbled and boiled at certain spots. The steam-cones are also found on the banks of the Yellowstone Lake to be presently described.

Except where the hot water actually falls, vegetation does not appear to be injured by all this eruption of scalding and soda-impregnated water; on the contrary, much of the grass and herbage, and even trees, must often get a warm shower-bath, and they seem to prosper under this unusual treatment. The geysers are surrounded by a forest growth, as is almost every other spot in the region.

Crossing the country to the Yellowstone Lake, we came to another beautiful, if not wonderful, part of the Park. The lake is remarkable for the number of deep bays, or arms, which indent its shores. It seems to be about a dozen miles across at the broadest part. It is stated to be more than twenty in length; but this distance must include one of the long narrow arms. It is surrounded by high mountains, which are distinctly visible from every part of its shores, but there are large stretches of level ground on its banks clothed with beautifully green short grass; and with pine woods at frequent intervals running down to the water's edge; the forest being close at hand in the immediate background.

The water of the lake is an ultra-marine tint, and waves like those of the sea break on its shores in spite of its small size; but sometimes it is as calm and smooth as a mill-pond. We had no means of ascertaining its depth; but though there are indications that it must be very great in places, at least near the shore it is shallow; and there are patches of reeds and rushes extending some little distance out from the banks, giving shelter to myriads of wild-fowl: indeed, the sight of the flocks of ducks rising from the surface of the water is one never to be forgotten. The sky was often black with them; and we collected hundreds of their eggs for food—as many as we could eat, and carry away. The water swarms with perch and trout; and two or three other kinds of fish which I did not recognise, and these, no doubt, attract the water-fowl in such vast numbers. I shall speak presently of the fauna of the district.

There are several smaller lakes near the larger one; and many ponds, or mountain tarns besides, the majority of them inexpressibly beautiful in themselves and the surroundings. In all those I tried with improvised fishing-tackle, I caught fish of similar species to those found in the Yellowstone; but I cannot, unfortunately, give the specific names of them. It is certain that one is a kind of trout, another is called a golden perch by trappers, and seems to be of the Perca family. Most of the others had broad and somewhat flattened bodies, and were of small size. The fry of these fishes was seen swimming in the shallows in shoals 100 yards long, containing many millions of individuals; and these were being pursued so eagerly by water-fowl that the latter neglected their usual caution and permitted us to approach quite close—with no great disaster to themselves, however, as we only shot as many as were required for food.

Many small streams empty themselves into the Yellowstone Lake, the outlet of which is the Yellowstone River. We made a complete circuit of the lake, and revisited the falls on the east side. There is now a hotel, one of the four or five which have been established in the Park for the accommodation of visitors, on the north bank of the lake; but at the time of which I am writing the solitude of the place was as absolute as that of Alexander Selkirk's island. The only signs I discovered that the district had ever before been visited by man were one or two scorched places where fires had been made at some distant date; and a piece of board, or thick plank, in which several holes had been bored and a piece of string threaded. This lay upon the bank of the lake, and had, perhaps, formed part of a raft: but who had been at the trouble of bringing a piece of heavy plank to this isolated spot? and how had it been effected?

To return, for a moment, to the Falls. After giving accounts of the wonders of the Yosemite and Cascade regions, I fear further description would seem rather tame; yet the Tower Falls, the lower ones especially, are wonderful, beautiful, grand—well worth a journey across the great Continent to see and admire. There is certainly nothing of the kind in Europe to be compared to them, and were it not that in this mighty land such marvels of beauty and grandeur are plentiful as blackberries, "The Tower Falls" would be a proverb in men's mouths.

The descent of the Tower Fall is said to be 350 feet. The distance does not look so great—it is so frowned down, as it were, by the majestic surrounding of rocks which are giants in the land. Perhaps the best idea of the force and volume of the fall is the fact that the water is ragged, in its descent, into thousands of streams, and a cloud of spray so fine and thick that the air which is impregnated with it *cannot be breathed*; and for this reason a person in the cañon (which may be descended into with tolerable ease) is prevented from approaching nearer to the Falls than about 150 yards.

crawl under the full basins above him. The deposit of which they are formed is hard, white in general, but tinged with many different colours, orange, red, and yellow predominating, and the whole has a very artificial appearance; and it is not without an effort of mind that one can believe that such strange formations are entirely natural. As a rule, man imitates the works of Nature: here Nature seems to have imitated the works of man.

On the hill itself there is absolutely no vegetation of any kind, but all round the foot, and over the surrounding country, there is one of the densest pine forests I have seen in the West; yet the trees, compared with the giants of the Cascade and Sierra Nevada ranges, are pigmies. Few of them, I think, attain a height of 100 feet, and they are of small diameter. The kinds are few in number, and the only one I certainly recognised was the widely-spread Douglas pine. The whole country is overspread with forest growth of this kind, with very few breaks, and those of small extent, the tops of the highest peaks excepted.

Of other forest growths there are none of sufficient magnitude to deserve mention. In some of the valleys and low-lying spots the shivering aspen gives a pleasing relief to the gloom of the ever-present pine growth; and I remember noticing a tamarack or two, and some cotton-wood, here only of the size of bushes, in the beds of the streams. But the growth of lesser plants, from short, intensely green grass up to shrubs of 20 feet, occupies every yard of ground where it is not crowded out by the pines, smothered by the mud, or scalded by the geyser spray. Flowers, beautiful, bright-eyed, or modest, half-hid little blossoms, live out the life of their short summer, and not a few smiled their humble, but highly-loved, welcome to us, before the snow had melted from about their brave little roots.

About the foot of the Mammoth Spring Hill, and in many other parts where there are springs and geysers, we saw numbers of curious pyramids of dried mud, which are not easy to describe. They looked as if huge sheets of mud of the consistence of dough had been placed on a pedestal, and, hanging somewhat loosely, had been permitted to dry; then other sheets placed on them, and so on. These curious pyramids of mud (for such they undoubtedly were) were of many different sizes, from little heaps which I could use as a seat, to columns 20 feet high. Sometimes they stood far from others of the same formation, sometimes occupied the ground in clusters.

After surveying the Mammoth Spring, the visitor will probably proceed to inspect the two great falls of the Yellowstone River—the Upper and Lower Tower Falls — with the deep and horribly gloomy cañon between them, though I should advise a visit to the first cataract, and the Hell-Roaring Creek also; the latter especially, as it is one of the fiercest cataracts to be found in the Rocky Mountains, and is rendered still more impressive by being buried in a gully so narrow and deep that it is only from a few points that a view of its seething waters can be obtained.

The two Falls alluded to have been so frequently described in newspaper and magazine articles, and withal so fairly well, that I do not feel justified in devoting much space to them here. In gloomy grandeur they are not equalled, but in magnificent splendour they are much excelled by the torrents of the Yosemite. One of the most remarkable features of the cañon is the

For nearly a quarter of a mile in the cañon this spray falls like a heavy shower of rain.

The rocks close to the Falls are as flat and upright as a wall, yet every square inch of them is covered with a dense growth of herbage, which is always wet, and has a light, but unhealthy-looking green colour. As it descends into the misty abyss it presents a singular sight, the green being first dimly seen through the spray, and so gradually lost to view in the whirling white clouds. The pine forest crowds round on all sides; and there are many trees growing in the cañon itself wherever there is a ledge or crevice to support their roots. Pines are seen at all angles, nodding to the impending fall, some even hanging top down, the tenacious roots still clinging to the rocks.

From every elevated point the view is truly magnificent. Scores of snow-capped peaks overhang a richly wooded tract of valley and plain, cañon and gully, with gleaming streaks of silver light where rapid currents glide through the tangled growth of dark pine. The Yellowstone, before and after it enters the great cañons, is a picturesque stream with pretty wooded islands in mid-stream, and projecting points bristling with pine groves. A vast tract of country is opened to the view from the higher mountains. Not only the greater part of the Park, but far stretches of Montana, Wyoming, and Idaho are within the sweep of the eye.

I have repeatedly spoken of "the Park," but at this time there were no bounds, no qualified terms or limits; it was the Yellowstone tract to me, and much of what now follows relates to the mountainous district to the east, which has a much greater general elevation than the Park proper. This is now a "Timber Reservation," but is outside the boundary of the Park. It is, however, a land of wonders and natural beauties of a quieter character than those I have been describing, though often equal to them in magnificent grandeur. For instance, though there are no towering falls on the Fox fork of the Stinking Water River, yet the rushing brook is at the bottom of a cañon not more than a mile wide, though 9000 or 10,000 feet (roughly a mile and a half) deep. Where the cañon narrows, and seems to close in, it is so gloomy in the horrible abyss that objects are only dimly seen. In fact, while it is brilliant mid-day above, below it seems to be late evening. Here, too, the awesomeness of the grave-like crevice is increased by huge caverns in the side rocks with recesses so deep that they are lost in blackness, notwithstanding that the arched domes of some of them are several hundred feet high. Others are very low, and curiosity led me to explore one or two. They do not seem to penetrate the mountains very far, and apparently huge masses of rock frequently fall, for the floors were so littered with débris that I could not climb over it. A few bones were noticed lying about, but whether they were those of extinct or living species I could not decide.

Before proceeding further I will make a few records of the natural history of the Park and district. I am the more anxious to do this as I have never seen the meagrest list of animals in such accounts of the Park as have come under my notice, and the only mammals I have seen mentioned as inhabitants of this region are bears and three or four kinds of deer, though it is asserted that big game has sought an asylum in the Park since shooting has been forbidden. Perhaps so, though there is more of it shot than is generally supposed, for poachers find their way into the forbidden fields by many devious ways across the mountains, and as late as '95 or '96 there were several gangs of notorious characters lurking within the Park boundaries, living on the game and committing many depredations. Needless to say that it would take an army of wardens to thoroughly police a tract of the size and configuration of the Yellowstone Park—a place where a man might live and die and never be seen or found of his fellow-men.

Of course I could not learn much of the fauna of such an extensive district within the short space of four or five weeks, nor could I study the habits of the creatures which make their home here. Further, I could not be always sure of the species, or even the family, of animals seen. Many, therefore, cannot be mentioned. Small birds especially, except those of well-known species, are difficult of identification unless actually procured and examined by specialists. Not to waste space, I simply say that those here mentioned are only those species actually identified, or birds of families which could not be mistaken. The list, I am conscious, is a poor one, and very incomplete, but as far as it goes it is to be relied on. The reader who has no interest in such matters may skip the next nine or ten paragraphs.

A few bisons (not more than fifty in number) are carefully preserved on one of the lake islands, where they do not prosper, and are gradually dying away. In the old days, when the bison wandered in a state of Nature, it never penetrated to this district. With this exception, most of the large mammals of the northern division of the continent made their homes in the Yellowstone basin. We actually saw two herds of moose-deer, numbering respectively seven and nine members, and though the black bear was not seen, numerous traces of it were observed. The grizzly was also probably here in some numbers. Wipiti, and white and black-tailed deer, were numerous, and as we found the half-devoured carcass of one of the latter surrounded with puma footmarks, and tracks of this animal were seen elsewhere, it may be taken for granted that it was abundant enough. Of the different species of deer we saw at least ten thousand head during our sojourn in the land, and as they were not disturbed by us (we shot only the two or three required to supply our needs), they displayed a tameness truly astonishing. Frequently we passed the herds as closely as if they were tame deer in a gentleman's park, and they displayed no fear; indeed, on one or two occasions they followed us at a distance of 150, or 200, yards under the influence of that curiosity which is often so fatal to most species of deer. It must be remembered that only the most venturesome trappers had penetrated to this region, and they, like ourselves, had probably not persecuted the deer much, their search being for more valuable pelts than buck-hides.

Wolves were not seen, but were heard howling at night-time on two or three occasions, and small mammals generally were either scarce or nocturnal, for few traces of them were met with. Two or three species of mice are the commonest, but there is literally nothing to record of them, nor of some kind of burrowing animals the mounds raised by which were seen in small numbers here and there, and which we could not afford the time to stay and examine.

It is to my favourites, the birds, that I devoted most attention. The numbers of species in the district seems to be very great, notwithstanding the coldness of the climate; and yet there is no marked change of species from adjoining States. Among birds of the duck kind, which are, as I have already remarked, exceedingly numerous, the only fresh species I noticed was a goose. This bird, which was one of the scarcest of the family in the Park, after careful survey of museum specimens, I feel no hesitation in stating to be *Anser hyperboreus*. The common wild duck, the pin-tail and the scaup, were shot; and also the cinnamon teal, *Querquedula crecca*. A bittern, *Botaurus lentiginosus*, and a curlew, *Numenius hudsonianus*, were noted on the smaller lakes and about the mud marshes. On the Yellowstone Lake a flock of gulls was busy, but these and a grebe were not identified; the same remark applies to a snipe which puzzled me a good deal, as it was certainly neither Wilson's nor the other commonest kind found in the marshes of Montana and the Eastern plains. The common woodcock, *Philohela minor*, was abundant, especially among the pine-swamps near the great geysers. Rails and plovers were seen but not identified. A dipper was seen once only, in a creek of the third cañon. There was also a second species of wild goose, much more numerous than *Anser hyperboreus*, but I could not get near enough to identify it, these geese being the most wary and suspicious birds in the Park. A large flock of cranes passing over the Lake and sailing away northward at a great rate of speed, presenting a grand sight, were certainly *Grus canadensis*, odd birds of this species having previously been seen fishing in the shallows. This, I think, completes the list of water-fowl.

Among game birds, so called in America, a grouse, which was only seen at rare intervals, and a pigeon complete the list. The pigeon reminded me greatly of the common wood-pigeon of our English copses; but I do not positively identify it with *Columba fasciata* which has been pointed out to me, and cannot go further than saying it is probably that bird. Of the mourning dove, *Zenaidura macroura*, there is no doubt. The bird is too well known to me to be mistaken.

A bald eagle, *Haliaëtus leucocephalus*, one morning perched on a dead pine branch near us, and remained watching and turning its white head from side to side while we breakfasted. A few pieces of fresh deer-meat were pitched towards it; but it did not come down from its perch to seize them, and after a time flew rapidly away. This bird is *the* American eagle, and notorious for robbing the osprey. The latter habit, however, is incidental, and not common. The bird haunts all parts of the Park and district, as does also the golden eagle. Other birds of prey comprised a buzzard and a hawk, the common owl (*Strix flammes*), and at least three other owls, one of which was believed to be *Scops asio*.

The small birds are far more difficult to remember and identify; but the popular names of some may be of assistance in fixing the species. The difficulty is that what are "sparrows" and "chippies" in one district are different from the birds bearing these cognomens in another. However, here are, in trapper's parlance, chippies, white-throats, song-sparrows, marsh-chicks and a host of others, which I can only reduce down to families represented as follows, titmice, wrens, and warblers. These families are certainly well represented, and there are more small birds (which are usually scarce in the wilderness), than I remember to have seen in any other region of a similarly limited extent. It will perhaps surprise English readers to learn that there is a magpie here, which is not distinguishable, to my eyes at least, from the well-known English bird, *Pica rustica*. Clark's Crow (*Nucifraga columbiana*) is common, and so is the rose-breasted grosbeak (*Habid ludoviciana*). The pigmy nuthatch (*Sitta pygmæa*) was seen; and among woodpeckers, the flicker (*Colaptes auratus*). There are other woodpeckers, one a red-headed variety; but, as I am not certain of the species, I do not attempt to specify them.

Few of the birds here do more than twitter and chirp, but we were frequently charmed with the song of the rubycrown (*Regulus calendula*), a bird whose charmingly contrasted plumage (olive green with a scarlet crown) is well matched with its delightful pipe. It is, in my opinion, a much better songster than the song-sparrow. It may be mere fancy on my part, though I do not think it is, that this and other birds seemed to delight to post themselves in the trees near our camping place. Night after night both myself and my companion noticed the fact that small birds were hopping about in the boughs over our heads, calling and chirping. The "robin," otherwise the common American bluebird, was seen hopping and flitting about in such a manner, often passing overhead in straggling flocks, as to lead to the assumption that it was performing its transition from more southern regions. At any rate, here it was, in limited numbers.

Of reptiles or batrachians I saw but scant signs. No snake was met with, but there was a number of newts in the shallow waters, and a small land lizard in damp spots.

Insects were numerous, but the majority of them belonged to the coleoptera. None of these were particularly striking, either by size or colouring; and most of them harbour under the bark of trees or beneath stones, where they are sought by the birds. A kind of locust, also, was abundant.

This ought to be an important region to the naturalist, for it is in the very heart of the great divide between the Pacific and Atlantic water-sheds, but the great number of species was the only remarkable point which I noticed; and there is no marked change in this respect for many hundred miles east and west of the Yellowstone Park. America is certainly remarkable for its number of widespread species. Many of the birds of the north division are found practically all over it, and not a few in almost every suitable district in both great divisions. The peregrine falcon, and the common screech owl, for instance, are found throughout the Continent from the Arctic Circle to Patagonia. The same is true of several scores of other birds, and of the puma among quadrupeds; but what is more strange is that I have found three species of butterflies at such widely divergent places as Canada, the Mississippi Valley, Florida, Texas, Mexico, Brazil, and Argentina. One of these butterflies is a faded white in colour, the second dull brown and greyish, and the third dull red, or mahogany brown, with black markings; the species, however, I cannot identify.

The territory of Wyoming (it was not a State until long after this period, although it has been settled to some extent for nearly a hundred years) was more sparsely inhabited than even that of Montana, and there were fewer Indians permanently living upon its soil. The number of whites was said not to exceed 15,000 or 20,000, much scattered about the territory, the majority of them in the west. There were frequent troubles with the Indians, and these were being gradually exterminated. That, I fear, is the proper word, for to the tribes of this region removal to Reservations was practically a death sentence. The amount of good agricultural land in the territory is small, and a thousand Indians, taken from the *best* of it and placed on some of the *worst*, dwindle to a hundred in a very short time. The Indians from Montana raided Wyoming very frequently, so that there was sometimes a very great number of the Red Men within the State bounds.

We continued our journey right round the Yellowstone basin *viâ* Jackson's Lake, a much smaller sheet of water than the Yellowstone Lake, but of a similar irregular outline, and, if possible, a still more beautiful pool. Returning to Bozeman, we, after a week or two's rest, again entered the territory from the north-west corner, this time with the waggon fully repaired and replenished, and prepared for another long stretch of travel; yet our progress through this territory from north-west to south was slow, as I made several halts while exploring chosen parts of the country.

The scenery of Wyoming is very diversified, and it is asserted by a large number of the native farmers that the greater part of the territory will never be of the least use for agricultural purposes, and that seems to be an accepted view in official quarters. Possibly this is the reason that the population has not increased in anything like the same proportion as in other States which are not older, if, indeed, so old. Everybody has heard of the Wyoming "bad-lands," or *mauvais terres*, as they used to be called; but really one who has seen them wonders to hear such an epithet applied to ground which is covered with rich herbage, as is often the case. However, it is a comfort to one class, at any rate, to know that there is some land on earth that the greedy farmer will never want to grab. The man who has seen a barbed wire fence, 500 or 600 miles long, stretching across the prairie with numerous notice-boards cautioning travellers that they must only pass it at authorised points if they wish to escape drastic pains and penalties, is apt to feel rather depressed if he be a lover of Nature and freedom of movement. A wire fence cannot be drawn across the bad-lands—the reason, perhaps, that the farmer does not want them.

The first bad-land tract which we stopped to examine was south of the New Fork, Green River, one of the best known districts; and this ground truly could not well be used, for it is so cut up and intricate, that no doubt sheep and cattle taken there to graze would inevitably be lost, and fugitive criminals once gaining the shelter of this asylum are so certain of escape that they are never pursued into its recesses. Felons come hither from cities and towns many hundreds of miles distant; and every now and then they organise their raids, like the Indians, come forth in bodies, and do much mischief to the honest settlers. Even as long ago as the time of my first journey in this region it was asserted at the settlements on the Green River that there were several hundred outlawed scoundrels lurking in the bad-lands. Occasionally a few of them were shot by the outraged citizens *in posse*; sometimes they fell foul of the Indians, who generally handled them roughly; and less often our friend, Judge Lynch, held a field assizes, with results that were a foregone conclusion so far as the fate of the rogues was concerned.

Into this region I penetrated with two white attendants, and two Shoshone Indians of the Big Wind tribe. The latter were really taken as a protection from other Indians, for travellers seen to be friendly with the Red Men are never molested, except by such irreconcilables as the Apaches and Crows. From the desperadoes we feared nothing, as once within the labyrinth we had the same protection as themselves, and equal chances of escape.

How shall I describe these curious lands? Imagine thousands of streams, most of them of small size, cutting cañons in winding, zigzag courses. A multitude of other streams cutting across these at every imaginable angle; and the cañons, or rather gullies, thus formed, varying greatly in depth, 50, 80, 100 feet, and sometimes, as much as 500 or 600. Let the mind realise such a tract, and it will have some conception of the New Fork Bad-Lands. The gullies are usually only a few yards, and often only a few feet, wide, forming a hide-and-seek maze where, in the area of 100 acres, a score of persons might play bo-peep for a lifetime and not discover each other. A party exploring these recesses must keep together; if they wander asunder they can never rejoin their party.

Water was, undoubtedly, the working cause of this formation, but the gullies have mostly run dry. There are still, however, springs and rivers of varying size, so that there is no lack of water in most parts of this strange region; nevertheless, any person except an experienced frontiersman would be very apt to come to serious grief in this strange maze. The outlaws are said to have a series of landmarks by which they find their way about, and keep together; but we, in spite of Indian aid, had to resort to a compass in returning from our exploration of this country.

There are no trees here, and very rarely a bush, but there is plenty of bunch grass, and the rocks are gaudy with flowers, as varied in colour and size as those of the open prairie. There is a sort of creeper, taking the place of ivy, which does not grow in any of the American wilds — at any rate, I have never seen it. This creeper, which bears but a very inconspicuous flower of a light greenish tint, is nevertheless a very beautiful plant, with fingered, light-looking leaves, growing in dense masses, which turn in autumn every conceivable tint of red, from a marone, which is almost black, to light pink. In this region it covers acres of the rocks without a break, and has a charm of its own, which prevents travelling here becoming monotonous. The tops of the rocks are often flat, and covered with brown grass or weeds, and the fodder these afford sustain horses excellently well. Quails and grouse harbour here in great numbers, and both the big-horn, and the wild goat, are numerous. These last when disturbed leap from top to top of the rocks, which fact gives a good idea of the narrowness of the gullies. We saw them flying through the air at great heights, one of the Indians shooting a big-horn in mid-leap at a height of at least 300 feet. It fell to the bottom of the gully with a tremendous crash, every bone being smashed, as well as the horns, yet, strange to say, the skin was not much damaged. There are also deer here, and prongbuck, but these nearly always having timely warning of man's approach are but seldom seen or shot. The same may be said of the coyotes and wolves; and there are doubtless many small mammals besides the rats, mice, and "rabbits" which have innumerable burrows and holes hereabouts, for birds of prey were seen hovering at all times of the day; and it was not an uncommon sight to see an eagle hovering vertically overhead, evidently surveying our party, with an absence of fear which proved it was not yet acquainted with that cruel and useless persecution which is the lot of all "the inferior animals" where man abounds.

The rabbits mentioned above are really a kind of hare, and would, no doubt, afford fine sport to those who reckon the measure of their success by the number of head killed: for they ran ahead in the narrow gullies, sometimes in small parties, and nearly always in threes and fours, presenting shots which could not be missed. Other kinds of game, and especially birds, with the exception of the two or three kinds mentioned, seemed to be scarce; but the nature of the ground, affording every living thing such excellent opportunities for concealment, may have enabled many creatures to have escaped notice. And I know from the authority of many professional trappers that bears especially abound in the bad-lands, grizzly, black, and brown—the latter often called in America the Cinnamon Bear. I do not, however, admit more than two species of bear in North America, being convinced that all black, brown, cinnamon, and mixed-colour bears are of the same species. By mixed-coloured bears, I mean those animals, often seen, especially in some parts of Canada, which are black with patches of brown. These patches may be few, and confined to certain parts of the skin; or they may extend to all parts of the hide, a sufficient proof that they are accidental, and not the distinguishing marks of even a variety.

Probably we penetrated this labyrinth to the distance of 20 miles, seeing and hearing no signs of human life. In the strata of many of the cliffs the bones of extinct animals were seen in considerable numbers, and we secured a few, the most interesting of which was a tolerably complete skeleton of the so-called toothed-bird. I will make no controversial remarks about this animal. I simply state a *fact* when I say that it had no wings, nor any limb that a man not befogged by the mind scientific could honestly call a wing. It has all the appearance of a reptile—and to some kind of reptile the bones had probably belonged.

Other bones were those of a fox or some kind of dog, and of an animal of the weasel family; and others, again, had belonged to a bear of huge size. There were also the bones of an animal of very large size seen embedded in a cliff 100 feet above our heads, where they were not within reach.

Every turn within this labyrinth brought fresh rock-forms to view, many of them as eccentric in shape as they were ponderous in mass; and the celebrated "Laughing Head" and "Indian Face" of Arkansas were here paralleled by many similar accidental shapes, the multitude and variety of which reminded us of the "sailing ships" and "Indian Queens" of the Lake Superior cliffs. One of the most striking rocks here is the "Mountain-goats' Head," the huge natural sculpture being a most accurate likeness of the named object, even to the horns, which are formed of curiously twisted rock masses, the whole head being, perhaps, 400 feet in height.

East and south of the Green River Bad-Lands, we get some stretches of true American desert, the land being as desolate as any to be found on the North Continent. A great deal of the country is intersected by cañons, which cut it up in a similar manner to that which I have just been describing; and more if it is covered with cracks and rents like those noticed in the Mad River desert. There are here tracts in which we could find no drinkable water; that of the rivers or brooks, impregnated with alkaline and other minerals, was either not drinkable at all, or used at very great risk by man and animal alike. These are all lost in sinks; and we passed across the beds of many dry lakes, some of them 8 or 10 miles wide, and thickly encrusted with salt. The middle parts of some of these lakes were soft enough to permit the wheels of the waggon to sink into the axle-trees; and the horses sometimes had a hard tug to pull through; yet these old lake-beds were very useful as they enabled us to avoid the broken rocks and deep crevasses which rendered some parts of the country almost impassable. There is only scanty herbage on the plains here, and none at all, not even a solitary blade of grass, on the beds of the saline lakes; yet it is remarkable that an insect of some kind, apparently a flea, swarms in the latter, leaping away from the feet of the traveller in little crowds.

The ground (it would be a misnomer to call it soil) of this tract, with the rocks and sand plains, are of a bright red colour, verging into orange and yellow. The sand is sometimes very fine, and when there is much wind it rises in clouds which are as intolerably a nuisance as the dust-storms of California. The sand has been driven into hills of considerable size, as well as into hillocks of smaller dimensions; but we saw no evidence that these were of a shifting character, like many of those of a similar description in some of the desert regions of the neighbouring States. The surface is loose enough to shift under the tread, yet there is a scanty growth of weeds, and a few bushes of the *Artemisia* tribe, and here and there a large hill is full of the burrows of gophers; but the prairie-dog proper seems to avoid this kind of ground, and has established itself on tracts so hard that it is remarkable it has succeeded in mining it. By-the-by, other snakes beside rattlesnakes harbour in the holes of these strange little animals—a fact I cannot find recorded in any natural history. A good deal of mystery has been made of the circumstance that snakes and "burrowing-owls" occupy the same holes as the prairie-marmots, or "dogs," as they are always called in their native country, and the strange association has been termed "a happy family." The fact is that both snakes and owls frequent the holes of the marmots to prey on their young, and the "burrowing-owl" does not *burrow*. Having ejected or destroyed the rightful owner, the owl takes possession of the stolen home, and lives and breeds in it. The same charge may safely be made against the snake.

The prairie dog itself is a most amusing little animal, not so large as a wild rabbit. The shape of its head and its short stiff tail, combined with several of its antics, give it much the appearance of a funny little dog. It is rather a crusty-tempered little animal, and does not like intruders near its den. It shows its displeasure by a snappy bark, and by frisking in and out of its hole in an unmistakably angry manner. Up bobs its little round rump and stubby tail as it bolts head first into its burrow. Quick as thought it turns round, and before you have well lost sight of the tail you see its fierce-looking teeth and eyes grinning displeasure at you. Sometimes you may see the plain for a mile strewn with these queer little figures, each one sitting bolt upright at the entrance of its den. Fire a gun, and the whole, though they number thousands, disappear with magical rapidity; nor will they show themselves again while you remain in the neighbourhood. Like many other weak and apparently insignificant animals, they breed and multiply enormously in spite of numerous and active enemies, and hold their own in territory from which the bison and many other large creatures have been utterly exterminated. Owls, snakes, wolves, foxes, coyotes, rats, and hawks take greedy tithe of them, and man has made desperate efforts to destroy them wholesale; still their numbers appear undiminished. Without doubt, gophers and prairie-dogs are a great pest to the agriculturist, but when at length they are exterminated, the prairie will have been sadly impoverished by the loss of one of its most picturesque and amusing inhabitants.

While we were in this desert region, we were startled one morning by the sight of fifteen men rushing like mad people towards the waggon, gesticulating and shouting, and some of them reeling as if drunk. At first we thought they must be in fear of Indians, but when they came up we perceived that they were in a deplorable plight, the tongues of some of them lolling from their mouths, cracked and bleeding, and so swollen that they could not withdraw them within their lips. The eyes of all were bloodshot, their countenances haggard, and half of them were speechless and scarcely able to stand. Some wept for joy at having found help, and others threw themselves upon the ground overcome by their emotions. Water was their first necessity, and as speedily as possible we prepared hot coffee and cocoa, which had to be administered to the worst cases in spoonfuls, for they could not swallow without fear of choking, and for a long time we feared that two or three of them would die.

These were a party of miners from the Nebraska settlement, who were attempting to reach the Idaho mines on foot, and had lost themselves in the wilderness. They had much increased their misfortunes, and imperilled their lives by drinking the saline waters, and had experienced a very narrow escape from a most desperate situation. We spent that day and great part of the next in searching for and collecting the tools and belongings of these men, which they had thrown away in the hour of despair; and having pulled them together, and done what we could for them, we went some distance out of our way to put them on a safer road; and as most of them were Irishmen, needless to say their protestations of gratitude were warm and loud. One man who was too ill to go on remained in the waggon and afterwards made up his mind to finish the journey with us, and he proved to be a very valuable addition to our small party.

These men owed their difficulties to want of experience. It was no uncommon thing in those days for parties of miners travelling on foot to perish to the last man. This would never happen to backwoodsmen worthy of the name. There is no reason why men on foot should not walk right across the Continent; as a matter of fact, it has frequently been done, both by individuals and small parties, and we say, from a thorough knowledge of the country, that there is no great danger or difficulty in the undertaking. Rather we should write in the past tense and say "was." Romance-writers and conjecturers, people with no real knowledge of America, wrote and talked of Indian dangers; old women now talk of railway dangers. Thirty or forty years ago, nay, twenty years since, a solitary traveller might be murdered and scalped quite as likely by white villains as by red. Nowadays, the train may dash into a gully, and smash up the snugly wrapped commercial. A cab or an omnibus may cut one in two in Oxford Street. Such things have happened. There is, and must be, a percentage of dangers in all travel. If the Indians were such savages as romance-writers and wild talkers declared them to be, then it is marvellous indeed that I have escaped, though I have met them a hundred times when resistance to violence would have been impossible, and under circumstances that must have afforded irresistible temptation to the evily disposed.

All this part of the desert region, at least, seems to be a table-land of great elevation; but the climate is mild and equable. Arid as it looks, the sandy soil is very fertile; it lacks irrigation only. In all sorts of country in North America, arid desert or bleak exposed plains, even in such a frost-bitten district as Labrador, there is nearly always a thick growth of herbage and bushes, if not of trees, in ravines and well-protected valleys; but this is not the case in the deserts of Wyoming. Some of the rifts of the earth, though wide and well open to the influence of the sun, are even more desolate and arid than the plains. But if a stream runs through the gully this is not the case. There is then the usual dense growth of small wood and brush. What grass there is, throughout the territory, is excellent for fodder; but we noticed at the few farms we came to in the course of our journey across the land that "artificial grasses" occupied the ground; and these grew most luxuriantly, making the only really green meadows we saw in the State. It is clear, therefore, that here, as in other so-called American desert regions, cultivation and irrigation are the only requisites to making this kind of ground valuable to the agriculturists.

As we moved southward by east we found the ground more freely covered with sage-bush, or *Artemisia* as it would be better to call it, the word "sage," being very misleading, as the plant is really a sort of wormwood. An odd aspen or two were the only trees seen on this part of the plain; but some of the bushes were over 20 feet high, and occasionally formed thick copses.

The south part of the territory approximates to the north in elevation of the mountains, which are high and often snow-capped; but there is some difference in their general configuration, one feature being the tremendous cliffs which shut in some of the gorges or mountain passes. These cliffs rise ledge above ledge to an enormous height for such a formation, apparently 7000 or 8000 feet; yet these almost vertical walls are very different in appearance to those of the river cañons. They often have the appearance of being built up of gigantic blocks of rock (we do not know how otherwise to convey a good notion of the shape of the masses) laid not very regularly upon each other, some of the masses being several thousand feet in length. They thus form a series of cliffs upon cliffs; but the top is capped by an enormously massive perpendicular rock of fortress-like similitude.

Up these cliffs a good climber might ascend a considerable distance; but I doubt the possibility of scaling the final fortress-cap; and the descent is a thing to contemplate with terror. There is generally a tree or two on the extreme summit, which is flat. The height is so great that, looking up, a pine of 80 or 100 feet (few are taller in this country) appears as a small weed. A few straggling pines, and thin groves of these and some other trees, creep up the sides of the cliffs where the slope of the rocks will permit it; but the ledges of the heights, though sometimes a dozen or more feet wide, are destitute of vegetation, with the exception of a bunch or two of grass or minute weeds. Up these cliffs the wild goats and sheep climb with wonderful activity and fearlessness, often seeming to cling to the face of the rock like a bird. The final cliff, however, always seemed to balk them. I have watched them for hours at a stretch, and followed them as they walked along the ledges, holding my breath as I saw them preparing to make the most appalling-looking springs from ledge to ledge, now up, now down, and frequently where the narrow shelf was imperceptible to the searching eye; so that the animals seemed to be actually gliding about the sides of the mighty cliffs with their feet *en l'air*. High up as these creatures were, they must have winded me, for I could seldom get nearer to them than 2 or 3 miles, their movements being watched through a telescope; and even then I had to move with caution and keep out of sight, or the game immediately found some mysterious hiding-place. Once or twice, when I contrived to steal nearer to them, I took hopeless shots at extreme ranges of 800 or 900 yards; but my skill, or the old muzzle-loading rifle of that day, was not equal to such miracle-shots as this.

I had, however, some trifle of sport with the wolves in this part of the country. These animals had been very troublesome, tearing one of our dogs to pieces, and attacking the horses during the night, when the poor brutes were partly hobbled, and incapable of making a good defence. I tried watching, and stalking, and trapping all in vain—the cunning of these wretched animals being too great to be so easily circumvented. I was advised to try poison-baits, but this is a horrible expedient, the very mention of which was hateful to me; but as I wished to remain another week at this particular camp it was necessary to do something for the protection of our property, so I rode over to Perry's ranch to procure a pig.

Wolves, like some humans, have a weakness for savoury meats. They like horse-flesh and pork—the latter particularly. Bears also dote on pork so passionately that in the neighbourhood of a pig they forget all caution, and will run any risk; but this I did not then know quite so well as I did afterwards.

The ranch, which was a small one, was bossed by Mrs Perry, a widow of fifty years or more, and she appeared cutting such a comical figure that I could scarcely maintain the gravity of countenance which due respect for the lady demanded. Fortunately, I am a good-humoured, jovially disposed individual, and my scarcely suppressed merriment passed, I am sure, for an expression of delight at meeting the lady.

Mrs Perry had not exactly adopted the bloomer costume, nor did she wear divided skirts — articles of dress she certainly, like myself at that time, had never heard of; but she had on a pair of enormous jack-boots into which she had tucked her petticoats, so that she looked—well, all breech and pockets. She had on a cowboy's hat, carried a brace of six-shooters and a bowie-knife in her girdle, and a stock-whip in her hand. Her face was as red as my own, the result of wholesome, healthful exposure; and she was quite as merry and good-humoured as she was brave and gruff of voice—a gruffness of the sailor sort, which I translate—"no nonsense, and there'll be no unkindness; but don't take liberties." She almost pulled me off my horse in the heartiness of her welcome, declaring that she was always "delighted to see a boy," and hauled me indoors to have "a drop of short," previously to stating business. She declared that I might have the best pig in her yard if only I would drive the wolves into the next block; but as the worst would serve my purpose even better than the best, I selected a small porker with plenty of voice in him, for which Mrs Perry would not hear of receiving payment. So I invited her to visit the waggon and make a selection of articles likely to be useful to a lady in her isolated situation; and having been feasted like a lord, started on the return 20-mile ride to our camp, with the porker in a basket slung at my back, where he made noise enough to bring all the wolves in the territory on my track.

Next night I commenced operations. Not a wolf appeared, though I kept the poor pig constantly on the call by pinching its tail. I had our whole armoury ready, rifles, and fowling-pieces loaded with swan-shot, hoping to give the wolves a proper peppering before they could get out of range; but the cunning brutes must have come up on the wind, a common practice of theirs, and sniffed my presence. So the following night I shifted the bait to a fresh spot, where there were inaccessible rocks behind me, and set the pig squalling again.

There was moonlight enough to show objects at some distance off; and about midnight a great bear loomed up, shuffling forward at a pace which showed that he did not intend to give the poor little squealer much chance of escape. This was rather startling, and more than I had bargained for; but I let drive bravely—three or four barrels in rapid succession—and

Bruin had a quick and easy death. No wolves came that night. They had probably heard the sound of the firing and been frightened away. The third night also I watched in vain, but on the fourth the patter of soft-padded feet, and the flitting to and fro of dark shadows, showed that at length the cunning wolves had been tempted to run unusual risks. They were still suspicious, however, and showed themselves but momentarily, and only one or two at a time; while I continued to pinch poor chuggy's tail, but not too hard, lest if I made him more than uneasy and restless, it should reveal to those superlatively cunning brutes that the pig had a tormentor who might be dangerous to them.

At length they clustered together—a dozen or more of them; and I emptied barrel after barrel at them, firing as quickly as I could, first the swan-shot, and then rifle bullets, into the dim space into which they immediately vanished in the hope of making a Parthian shot to finish with. This terrific fusillade resulted in the death of one wolf killed outright, and two others badly maimed, which we found lying in the neighbourhood next morning. Probably others were hurt, and would die in a short time. This loss was sufficient to frighten the survivors away; we heard or saw nothing more of wolves in that district, and it is very likely that they would not reappear for many months; for no animals are so easily frightened away as wolves, nor are any more difficult to trap.

The pig was sent back to the ranch, and a promise wheedled out of Mrs Perry that it should not be consigned to the slaughterman's knife—until it was much fatter! A pig, and particularly a sucking-pig, is an irresistible lure to both wolves and bears. The latter will run any risk to obtain pork; and it is generally by means of a few pounds of poisoned pork that the ranchmen destroy the bears. The meat is laid in their tracks, is soon scented and found; and by this means alone wide areas of the Western lands have been entirely denuded of bears.

CHAPTER VII

COLORADO

ONE of the principal distinguishing features of Colorado is its "Parks," remarkable natural enclosures between encircling rocks, which rise abruptly to an immense height. These Parks are always said by American writers and explorers to be four in number, viz.: North Park, South Park, Middle Park, and San Luis Park. These four Parks are arranged in a straight line, one below the other, as nearly as possible, down the middle of the Colorado territory, and they are situated near the centre of the Great Continental Divide, the streams which water them running right and left, and flowing respectively through the Pacific and Atlantic watersheds.

Besides these great Parks, the areas of which, at a rough guess, vary from 500 to 1200 square miles, there are several other smaller parks, which, however, will not need individual description. They all have the same general features. The San Luis Park is really a great plain several thousand square miles in area.

The North Park is partly within Wyoming territory, and we entered it on our way to Colorado. The area, I should think, is about 800 square miles, and the surface is as flat as a bowling-green. The turf is so much like English meadow-land, and the clumps and groves of trees so much like those in an English park, that one might easily believe, if suddenly transported hither, that he was in the midst of an extensive British domain. He would miss the lordly mansion, and on closer examination perceive that the timber did not consist of those pure-blooded aristocrats of the forest, the British oak and elm, but of democratic representatives of those and other trees, which, like other democrats, are not always wisely or well named.

These Parks are the cream-land of the territory, and at this present day are crowded with domestic cattle which have been brought hither to take the place of the very nearly exterminated natural inhabitants of these charming and highly favoured spots. For the land is of the richest; and even before the ranchmen had established themselves here, their men were in the habit of driving in huge herds to fatten in the summer and fall, or autumn season. At the time, however, of my first visit, there were only one or two permanent residents in the North Park (principally within Wyoming territory), and the others were apparently as yet undisturbed, and were full of game, especially at the fall of the year. Even in the North Park I saw thousands of prongbuck, or antelope, as the trappers and ranchmen call them. These, though practically forming one huge herd like the bison, were organised, so to speak, in family parties, consisting of from seven or eight to thirty or forty individuals: these parties being separated from each other by a short space only—perhaps 100 yards more or less. Standing on elevated ground, which gave a commanding view, I have seen a scattered herd of these animals which could not have numbered fewer than ten to fifteen thousand head, and may perhaps have exceeded twenty thousand. Besides these there were black-tailed, white-tailed, and wipiti deer in abundance, besides a fair sprinkling of all other wild animals of the region. It was asserted by trappers and cowboys that bison formerly frequented these parks—the North Park especially. I accepted the information of these men, but I did not actually see evidence of its correctness. It is to be remembered that the bison was already showing most markedly the results of the cruel persecution to which it was being subjected. Already its numbers were less than a tithe of what they had been ten years previously; and the constant presence of tame herds of cattle, with the attendant men, might have been sufficient to keep them away at the time of my visit; for the herds are here at all times of the year. The grass and herbage in the Parks during winter lies on the ground as natural hay, and is still most excellent and nourishing fodder. Snow, if it falls at all, never lies, and the temporary sheds erected by the ranchmen afford all the shelter the cattle require.

No eye will ever again see fifteen thousand prongbuck or any other sort of deer in these Parks. No eyes but those of the slaughterers have seen the awful waste which has occurred here. The tales I have heard of cruel, wanton destruction are too disgusting, seem too preposterous, for repetition; but I will state a fact. In one spot some idle person, or persons, had collected the skulls of the victims into a rough heap, and I counted *seventeen hundred*, mostly those of antelopes or prongbuck; and in other places the plain was strewn with half-decayed bones for many miles. These animals had been shot down and left to rot where they fell; the object being similar to that of the Australian squatters, who destroy the rabbits because they eat the grass. So here the deer were shot because they consumed the fodder which was wanted for domestic cattle! This is one of the many reasons why the farmers are no favourites of mine—one of the reasons of my prejudice against all kinds and sorts of tillers of the earth, who, in my opinion, however necessary they may be to a "civilised community," are among the most greedy and destructive of any classes of men. Parcel the earth out into cultivated squares, crowd cities and towns together as thickly as possible, destroy all the wild creatures, and let us have no animals or birds but "carefully selected" and monstrously deformed ones; multiply laws until a poor wretch is not sure that he has not incurred the penalty of penal servitude for incautiously spitting in the street, or will be capitally charged for telling an officious policeman to mind his own business; and then talk to us no more of hells. It cannot be denied that vice, misery, poverty, excess of population, and a thousand other evils, are the direct outcome of over-civilisation: and some restraint should be put upon it. The man who boasted that he had burnt ten thousand trees to clear the land, or shot down hundreds of deer in a day to make room for cattle, would certainly find himself in danger of drastic punishment if justice inspired the law. But enough; the subject is too extensive to find space here. Civilisation is all very well—in its place; but half every man's life should be spent in hunting—*hunting*, mind, not slaughtering—therefore, a good half of the land should be hunting ground. It is the idle loafers about cities who raise six-tenths of the superabundant worthless population.

Our crossing the border-line between Wyoming and Colorado was marked by the occurrence of one of the most terrific storms we ever witnessed in North America. The thunder and lightning were truly appalling, and we expected every moment to be the subjects of a catastrophe, either by being struck by the electricity, or through control being lost of the affrighted horses. There was no shelter but that of the trees, and we had emphatic warning not to seek that. Tree after tree was struck, and one not 30 yards in front of us was riven asunder from the crown to the root, the fire sparkling like that from an exploding shell. We were compelled to make an abrupt stop, untrace the horses and hobble and fasten them by the head to the sides of the waggon, as the best means of preventing a stampede.

The duration of the storm was only six hours, and it was immediately followed by beautifully bright and clear weather. Sharp showers fell during its continuance, but the total quantity of rain was not great, and the country was not flooded. Much damage, but more good, was done. As to the damage; the next day we passed a ranch where they had lost about a hundred head of cattle, struck down by the electric current; and afterwards we saw sixty or seventy more which had been killed in different herds. Horses, also, had been destroyed, but we did not hear of the loss of any human lives.

For miles and miles, until, in fact, we came to what was no doubt the limit of the storm area, the ground was covered with dead grasshoppers—untold millions of them, looking in some places like buds beaten from the trees. Herein lay the good the storm had done.

Grasshoppers are the greatest plague of this region, and the wholesale destruction of such a pest was worth more to the ranchmen than twenty times the loss of a few head of cattle. The ground is sometimes so honeycombed by these insects, or their larvæ, that it may be described as being rotten; while every green thing is often eaten bare to the stalk by them. Often, as we travelled over the plains of this territory, and also those of Wyoming, the grasshoppers rose in thick clouds before the leading horses, and the whole country seemed to be covered with them. Though always called grasshoppers by the people of the country, they seem to me to be a species of locust. The young have a very peculiar appearance, seeming to have but two large, long legs attached to a mere pin's-head of a body.

The timber growth is precisely similar to that of Wyoming territory, only scantier: the result, to a great extent, of the wanton destruction of the ranchmen. I do not remember to have seen any tree here that was not seen also in the Northern State, as well as in other parts of the West; nor do I remember noticing any material change in the flora, except that flowers of every imaginable hue were remarkably abundant in all parts of Colorado. The ground of the Parks sometimes looked like a Paradise for beauty; and it is not surprising that one of the minor Parks is called "The Garden of the Gods." A description of these flowery lands is far beyond my ability; they must be seen for their beauty to be realised. The flowers are prairie flowers, and therefore as distinctive of the land as the edelweiss is of the Alps. There are flowers of singular shapes and magnificent colouring, and others whose chief attraction is their beautiful simplicity, and half-hid charms as they nestle amid the long grass and in the crevices of the rocks. Some grow in clusters, others are dotted about here and there. Sometimes there is an immense area of one predominant colour stretching as far as the eye can reach, and continuing to gratify the eye for days together, as one travels forward. Often an isolated mass of a different hue breaks the prevailing tint, and prevents monotony. There are flowers similar to those of our own fields and hedgerows, and flowers the like of which are to be seen nowhere but in the glorious freedom of the prairies.

In all my previous books on this great land I have, if I remember aright, alluded to, and expressed my wonder at, from time to time meeting with tracts of dead forest, which seem to have perished entirely from natural causes. What these causes could be, has always greatly puzzled me, and I have never discovered any reasonable explanation of the phenomenon. Here, in Colorado, I found tracts of forest land 20 or 30 square miles in area completely perished, the dead trunks lying about the ground in the wildest confusion, piled up in great heaps, leaning against each other in picturesque clusters and groups, and lying flat on the ground. Some trunks were still standing upright, but not one was in a living state—the whole had perished to the last tree. The trunks had a wizened and blasted appearance, and were partially bleached; the timber was decayed and worthless for any purpose except burning: but this it did fiercely enough, apparently retaining all its resin, for these dead tracts in this region consist entirely of pine-trees. In most such patches of dead timber which I have examined, the trees remained standing upright, but here most of them had fallen in such a way as to give the idea that they had been violently thrown down. It is certain, however, that the decay was natural, and had not been helped on in any way by the hand of man.

The appearance of these dead forests is inexpressibly mournful. They not only look ragged and, if I may coin a word, *deathful*; but all living creatures seem to have forsaken their neighbourhood. No wild animals haunt their recesses; no birds were seen perched on their decayed branches; the very insects seemed to have deserted their miserable shelter. The opinion of ranchmen, cowboys, and trappers, is that the winds are answerable for this strange decay; but if they are wind-blasted trees, how came they to have ever grown, and attained to maturity, where they were subjected to the action of such death-dealing currents? Can it possibly be that the trees owe their death to the extermination of some animals without whose aid the trees could not produce fertilised seed to replenish their stock? This scarcely seems a natural explanation; but it is as good as the wind-blasted theory. It should be remarked, however, that no other species of tree or plant has attempted to usurp the ground from which the defunct pines have ceased to draw nourishment: which is a very singular circumstance, as, if the trees of one species are felled or burnt off by man, another kind seems to be always waiting to take its place; and will grow and prosper, if permitted, to the entire exclusion of the species originally occupying the ground. Nature has mysteries that are very difficult to search out. Amongst other theories which have occurred to me while striving to account for these dead patches of forest, was that the ground might have become thoroughly exhausted, or poisoned by the washing on to it of some mineral matter prejudicial to vegetable life. But none of these ideas are likely to be correct. Bushes, shrubs, or trees, will not grow within the blighted area, nor do creepers cling to the dead trunks; but the ground under the withered branches is covered with grass and weeds among which are not a few pretty flowers, the only attractive objects to be seen in such a situation.

Rock forms are as varied and beautiful as tree shapes; and to the observing eye there is a constant change of figure in the rock masses of all the Western States. I have already pointed out one noticeable difference in the form of cliffs in Colorado. These cliffs enclose portions of the Parks, and in the case of the smaller Parks, the whole of the ground, with the regularity of a stone wall. Breaks do occur, it is true; but often the traveller may ride the greater part of the day without finding a passage of escape from what would be an awkward trap in the case of pursuit by hostile Indians. A few years since there was serious trouble with the tribes on the prairie-land eastward; but the Red Men in the highlands, including the Parks district, remained strictly neutral, and we never heard that any atrocities were committed in them: though, after the termination of the Civil War, numbers of scoundrels of the worst type congregated for safety's sake in this then inaccessible region; and, together with half-bred and outcast Indians, made it one of the most dangerous regions in the United States. (See references to this state of things in my "Great Deserts and Forests of North America.")

Both within and without the Park region, but more particularly in the neighbourhood of some of the smaller valleys, there are curious rock forms, in addition to those, found everywhere, which bear a marked similitude to living, and other, objects. One of these curious forms is a large isolated rock with a *forked* top, the result, I suppose, of some strange weathering freak. A little vegetation grows in the crutch of the fork; otherwise the rock is as bare as a sand-desert. It is 130 or 140 feet high, and has a circumference of 490 feet. One arm of the fork is more weathered than the other; and will doubtless some day fall with a tremendous crash, as it must consist of at least 100 tons of solid rock.

In both mountain and plain tracts there are many isolated rocks of the monolithic type; they are, indeed, so common, that they soon cease to attract much attention from the traveller except where their height, or size, make them so conspicuous an object as to render it impossible that they should escape notice. Some are so tall and slender that it is wonderful they continue to stand when the fierce blasts of the sudden storms this district is subject to swoop down upon them. Pinnacle rocks, they are usually termed; and many of them exceed 100 feet in height. These are particularly prevalent among the mountains in the western part of the territory; but, more or less, they will have to be noticed in all the States which remain to be described.

Again a pause is necessary, for my knowledge of the territory (now State) of Colorado having been gleaned in no fewer than four separate visits, besides communicated intelligence, it is palpable that it cannot be given in the form of a consecutive narrative. I have visited most of the principal towns and cities, but these being civilised places *now*, do not come within the scope of my plan. I have spoken of rough times and rough doings in Wyoming, until the respectable element obtained the upper hand there; but the early history of some of the Colorado towns reads like the story of the infernal regions; and this is no far-fetched, or exaggerated, simile. The first five or six important mining towns established in the territory were, within a few years of their founding, though after they had attained to a considerable degree of prosperity, *wiped out* so effectually, that their very sites are almost forgotten. The awful deeds that preceded and accompanied this drastic destruction were of such an atrocious nature that at length the very fiends who had taken a leading part in bringing it about fled horror-struck from the land.

This is not quite what is recorded in history; but the records of history, like those of science, are often more to be praised for "literary style" than literal truth. The truth is that the early history of Colorado reads very much like that of Sodom and Gomorrah; and it may be truly said that a more atrocious set of wretches, male and female, than those the early gold rush brought to this lovely country, was never assembled together, in any land or any age of which there is a record. They were simply the human sewage of Europe; the fever-slough cast off from the diseased communities of the old world. There were very few born Americans among them; and those few, following respectable callings, were objects of hatred to the rogues, and the majority fell early victims to their wickedness. At one period, during these bad times, the population was certainly at least 150,000 persons, of whom about five-sixths were males. At the time of which we are writing the people were not many more than 40,000, or one person to every 2½ square miles of surface. Both counts exclude Indians.

I give the population of each State of which I obtained what seemed to be (and think was) authentic information, but the reader must not be misled by the numbers. Practically there was *no distribution of population* in the majority of the States, the people being concentrated in the few towns and at the mining works.

Colorado, so far as the country was concerned, like Idaho, Montana, and Wyoming, were really as yet undeveloped wildernesses. Denver, the State capital, was not, I think, even founded; at any rate, it was of so little importance that I had not even heard the name in this part of the country (there are places called Denver in Eastern States). The number of isolated farms in any of the Middle Western States was exceedingly small; and even these were collected within certain districts. I never learned the approximate number of Indians within the bounds of Colorado. Judging from what was seen, they were fewer in number than in Montana and Wyoming.

Our first expedition was to visit the great cañon of the Gunnison River, which is 60 miles long, and of enormous depth; in many respects more than rivalling the Rio Colorado. The country west of the Parks is more mountainous than any I have yet described, or at least contains a greater number of high peaks. These peaks, notwithstanding that they average more than 12,000 feet in height, are but very scantily besprinkled with snow in summer, and fall time; they cannot be spoken of as snow-capped, though snow lingers in patches on some of the highest of them. These snow patches, sometimes, influenced by the configuration of the ground, assume strange patterns; and one of the most dramatic incidents which occurred in any of my journeys happened on this occasion. We had not long started from the South Park, and had just got to the high plateau beyond, when I was positively startled to perceive a huge, but most perfect, white cross on the summit of one of the tallest peaks which proved to be fully 40 miles distant. This was the now world-renowned Holy Cross Mount: but, at the time, so little was I read up, or in any way posted, of the country we were exploring, that I had not so much as heard of this extraordinary natural wonder. The effect on my mind was immense; what it had been on that of the Spaniards who first discovered and named it I can well conceive. Their very souls must have quivered with superstition, reverence, and religious enthusiasm. The explanation is simple enough; but this in no measure reduces the wonder of the sight. A long, narrow ravine runs downward from the summit of the mountain. This is crossed at right angles by another gully running horizontally on the side of the slope, thus forming a perfect cross. When the snow on the mountain-top melts in summer, the rays of the sun cannot reach that portion of it which is lodged in the deep ravines; the result is that a lily-white cross of great size is left embedded on the dark mountain-top. The height of Holy Cross Mount is 14,000 feet; and several other peaks of equal or greater elevation are well within sight, to say nothing of scores of other points which would be noteworthy in any less mountainous country. The Holy Cross can be seen from immense distances in several directions. We did not altogether lose sight of it until four days' journeying had elapsed after discovering it; but the Cross is not seen perfectly from all points of view.

The rocks in this district are the barest I have seen. We did not pass very close (12 miles off, perhaps) to the Holy Cross, nor attempt to ascend any of the high peaks, which it could be seen would be no light or sure task; but the lesser heights we passed over were treeless and grassless; and through a spy-glass the high peaks appeared as bare as polished brass. Not a weed could be seen. In the gullies and cañons, a few pines, generally blasted in appearance, a few miserable specimens of the aspen, and an odd cotton-wood or two, with some forlorn-looking bushes and a little grass, comprised the vegetation. The gullies were deep, sometimes dry, oftener with roaring, rushing streams at the bottom, tearing over the rocks, boiling into foam of milk-white colour, and forming many cascades. Small streams of water, often mere ribbons, indeed, poured over the walls of the cañons, now and then forming falls of several hundred feet. Some of these streams of small volume fell from such a great height that they were beaten into spray on the rocks long before they reached the chasm below.

The country round about the Gunnison was an absolute wilderness, as I believe that it still is. Not a human being of any kind seemed to be within hundreds of miles of the place. We saw neither white man nor Indian, nor any trace of either; and game and birds were very scarce. Here and there was a park of very small dimensions, but well grassed, and timbered with cotton-wood. We saw traces of elk (wipiti) and smaller deer in these favoured recesses; but could not find the animals themselves. A few small hares (the "rabbits" of the West), and a coyote, were the only animals met with, with one exception.

The exception was a large puma, which, when first sighted, was on some rocks a couple of hundred feet above our heads. It tried to escape upward, but finding the cliff too steep to be ascended in spite of its cat-like swarmings, it was compelled to descend into the gully just ahead of us. It was an unusually large animal, and in splendid condition; and as I wished to have its skin, it was fired at and struck. Its motions were rather strange. It squatted on its stomach and crawled along for a few yards, then remained perfectly quiet in the attitude of a dog asleep, and I thought it was dead. On being approached, however, it suddenly reared up and displayed its fangs and claws in the most terrific manner, roaring in its impotent fury. The spine was evidently injured, and the hind quarters were paralysed, preventing the animal from moving from the ground where it squatted; otherwise it would have gone ill with me, for the creature was desperate in its anger; and no person looking on its glaring eyes and unsheathed claws would ever after place much reliance on the stories of some travellers of the cowardice and harmlessness of pumas. The puma, when in danger, tries to escape, as most animals do under similar circumstances; but injured, or dangerously wounded, it is ready enough to defend itself, though probably it is rarely the aggressor. There are cases reported by the trappers of its having attacked men without apparent provocation. They may, however, have been unknowingly approaching the puma's lair where there were young. This opinion is supported by the fact that in each case it was a female which made the attack. A few years back a case was reported in the American newspapers of two young Englishmen being killed by a female puma whose young they were incautiously carrying off.

A shot at close quarters killed this puma, which, also, was a female, and an exceedingly large and well-conditioned animal. There were no signs of its having young; and I am inclined to believe that it was one of those solitary individuals which are occasionally found, and which seem never to pair. Such animals are always the largest and fiercest; but they are almost always of the male sex.

Probably this part of Colorado will some day become a great mining centre, for there are abundant indications of the presence in the strata of various minerals; but it will never be invaded by the agriculturist or ranchman. It would scarcely be an exaggeration to say that, the small parks excepted, there is not a plot of level ground a dozen yards square in the whole region; and it is cut up by innumerable cañons of the narrowest and deepest character to be found in the whole West. The little parks occasionally passed through very rarely exceeded 100 acres in superficial extent, being as flat as though levelled artificially. The three largest which we can name are Mackay's Park, and Baker's Park, each about 2 square miles in extent: and Spaniard's Park, about 400 acres. Near the latter there is another small park that is remarkable for the tremendous vertical rocks which enclose it. It is about 70 acres in extent; and, seemingly from want of a proper quantity of light and air, which is shut out by its walls, there is but little herbage on its surface, which, like that of all the others, is as flat as a pancake. Even the flowers here were languishing and of pale colour, and few in number.

The surrounding rocks, which were certainly not less than 5000 feet high, were of a dull blood colour. Singular as the description may seem, it is absolutely correct. The tint was just that of spilled blood which has soaked into the ground; and many rocks in this district are of this colour, sometimes light, sometimes dark. Other rocks were of a different red tint, and some were cream colour. These last we at once recognised as of volcanic origin: but there is no trace of recent activity; nor of hot springs, such as are found in Wyoming.

No mammal, not even a mountain goat, could possibly ascend any part of the environing walls of this little park. Standing close to the rock and looking upward the sight was appalling. It was so absolutely vertical, that the swimming of the eye, occasioned by gazing aloft, made it appear that the rock was moving forward to its fall. Though the top could not be seen from a spot immediately underneath, the eye could range upward a distance of at least 3000 feet: so that the slope backwards must have been very slight indeed.

A pair of white-headed (bald) eagles had their nest in the face of these rocks at a height so great that the birds did not appear larger than a couple of crows. The nest, which was built on a ledge, or in a shallow hole, could not be seen, but the fretful cries of the young birds could be faintly heard; and one of the old eagles was seen to cling to the face of the rock like a swallow, helping to support itself by spreading the tail against the rough surface. She seemed to be engaged in feeding the young; and, while I watched, the male returned with a large bird in his talons. My presence did not seem to be noticed by these eagles, and certainly gave them no uneasiness. Probably they felt perfectly secure in their inaccessible eyrie. A long stream of white discolouration, from the droppings of the birds, down the face of the rock, marked the site of the nest; and underneath, on the ground, was a heap of rejecta in the shape of bones of fish, hares, rats, and gophers, and the heads and feathers of prairie hens—birds I had not seen within the frontiers of the State.

A small stream burst from a rift in the rocks at a height of about 12 feet; and, making a deep basin where it fell, ran in a runnel to the far end of the Park, where was the exit, the walls here almost meeting overhead. The stream, which we could easily leap across, ran down a gloomy cañon for 7 or 8 miles, and then leaped over a ledge, falling in a cloud of glistening drops into another and deeper cañon, where ran a babbling brook, on its way, no doubt, to help form a river. Several similar cascades fell from over the rocks forming the walls of the cañons we were travelling through: and so great was the height, that some of them only reached the bottom as a shower of rain-drops. Probably as the summer advances many of them dry up altogether.

This was a very difficult and tiring country to travel through, but I did the whole distance to the Gunnison on horseback; my little mare by this time having become an excellent mountaineer. I never used spurs when riding her, nor gave her much guidance, having discovered from experience that she invariably picked the best road. It would, no doubt, have greatly surprised an ordinary equestrian to have watched my way of dealing with this little mare; but by training and kindness, and, above all, permitting nobody else to meddle with her, I brought her natural intelligence to such a degree of excellence, that at last I could get her to do almost anything that it was possible for a horse to perform.

The cañon of the Gunnison is as remarkable as any in this region; but I shall not describe it, because, taken as a whole, it bears a strong resemblance to the Grand Cañon of the Colorado, which must be noticed further on; and I fear that the repeated descriptions of the cañons and gullies with which nearly the whole west of the Continent abounds will become monotonous. To the view there is always variety in these scenes, as in every other class of landscape, in this magnificent country; but it is not always possible to find language which shall sufficiently contrast scenes that are similar on the whole. The Gunnison joins the Grand River which, in turn, joins the Colorado: and the cañons of all these rivers and their tributaries have a strong family likeness; many of them, as the Gunnison, being scarcely inferior in grandeur to *the* Grand Cañon of the main stream, which is described in the chapter headed "Arizona," to which the reader is referred.

An immense number of creeks join the Gunnison on both banks, rendering the country almost impassable to a horseman; and everywhere trees are remarkably deficient, considering that the axe of the lumberman does not seem to have yet been at work in this district.

The heat during the day, in the cañons and Parks, was about equal to that of a hot summer's day in England; but the nights were remarkably chilly, a circumstance that was mentioned, I think, as being prevalent in California. It is a common characteristic of the whole West. No doubt exposure to the day heat causes the night cold to be felt more acutely by contrast; and blankets and a fire are necessaries to men lying out in this country, but an overhead covering can be dispensed with as there seems to be no dew whatever. The air is always marvellously clear, causing distant objects to seem to be close at hand. There is never the slightest moisture on the rocks, plants, or ground in the early morning; and rain falls so seldom, and so sparingly, that the traveller may treat it as an almost negligible quantity. Nearly the entire rainfall comes in storms, and the majority of these storms break soon after midday, or in the early evening. I do not remember rain ever falling during the night. The small rainfall of the territory comes chiefly during the winter months in the form of snow; but this snow never lasts, and is never deep enough to prevent the movements of travellers. I have never seen more than a few inches on the level ground; and the moment the fall ceases it commences to thaw, so that it may correctly be said that there is no real winter-time here. I never saw a river or pond, even of the smallest size, frozen over, though there is sometimes a little ice on the margins.

For weeks at a stretch I lay on the ground to sleep, wrapped in a couple of blankets, with a valise for a pillow, and with a roaring pinewood fire at the feet. Any man chancing to wake fed this fire during the night; and most of us got into the habit of waking when it began to burn low—the sense of cold having, no doubt, something to do with it. It is very necessary to have a fire in districts where foxes abound, as it keeps off these cunning brutes, which will otherwise sneak up and run off with anything they can carry away—your boots or leather belts, in the absence of more tempting prey. I have often lost boots, and other valuable leather articles, through the thefts of these mischievous little animals; and I once lost a flannel shirt, which was afterwards found in the hole of a fox, rent to shreds, and forming the bed of a litter of cubs.

While in the neighbourhood of Gunnison River, we noticed many large spiders in a cañon where we passed a night; and three of the party were bitten about the face while asleep, with results which were extremely unpleasant, the pain and swelling occasioned by the bites being rather severe. One man had recovered at the end of a day, but another man and myself bore traces of the swelling for a week. I presume that it was experience with spiders of this species that was responsible for so many "Poison-spider Creeks," "Poison-spider Rocks," etc., in the nomenclature of the district. I am not sure that there is not a "Poison-spider Village": at any rate, at least a dozen places in Colorado bear this not very attractive name.

In former works I have had a great deal to say about spiders, and might say a great deal more here. They are, in my estimation, by reason of their repulsiveness and horrible habits, among the most interesting of the lower animals—if they are "lower animals." But as a matter of fact, they appear to be remarkably well-organised creatures, and as animals of prey could scarcely be more active, courageous, and well fitted to capture their victims. Notwithstanding the doubt thrown upon the fact by many scientific naturalists, spiders capture, and overcome, without much difficulty, wasps and hornets which are bigger and seemingly stronger than themselves; and the circumstance that a well-fed spider will sometimes cut loose from its web one of these formidable victims is no disproof of the fact. When starving, spiders will run any risk. But there are American spiders which habitually prey on wasps, and prefer them to any other kind of prey. That statement I make after careful observation and many experiments.

Regarding these Gunnison poison-spiders, the species of which I cannot name, I caught one in the act of dragging along a paralysed beetle which was double its own weight; another was seen sucking the juices of a spider of a different kind; and altogether these were as active and aggressive *Arachnidæ* as any I ever saw. They lurked in holes and crevices about the rocks, and were ever ready to rush out on a straw or stick being pushed toward them. They have their enemies, though, for I found some languidly crawling about with their bodies covered with parasites which were evidently sapping the vital forces. The size of these spiders is about that of the largest house-spiders, and they are grey in colour with lightish markings.

Continuing our journey first in a southerly, and then in an easterly direction, we moved again towards the centre of the territory, but everywhere the character of the country was such as I have already described. Many of the scenes were very fine. Looking northward from one point, I could count nearly two hundred peaks rising a considerable height above the surrounding country. That country, in this region, nowhere forms a plain of any kind or size; nor are there any "bottom lands" in the cañons. As far as could be seen, all the elevated peaks were absolutely bare of vegetation, and we nowhere saw a collection of trees which could be correctly termed a forest. A square mile or two of pines is a very considerable forest here; and if there are any larger tracts of arboreal growth, they escaped my notice, which I scarcely think is likely. The hollows between two rises of the hills generally are occupied by a strip of pine growth, which gradually narrows as it ascends the slope, and these strips are, as I have previously said, frequently composed of dead trunks. Small groves, and odd trees, are also frequent, and these are usually composed of cedar, aspen, or cotton-wood. Sage brush is sparsely scattered about; and on the rocks, red-flowered azalea, a bush having a pretty and sweet-smelling white flower, and a few others bearing blossoms.

This scantiness of trees and bushes probably has something to do with the paucity of animal life. There are far fewer animals of all sorts, birds especially, in this region than in the Parks and country to the eastward. At Needle Peaks, however, we found deer to be tolerably numerous, consisting of white-tailed and prongbuck, and a kind not before met with in these Western States, though in New Mexico and Utah it is tolerably abundant, and we also found it in Arizona and Nevada. This is the mule-deer, an animal similar in appearance to the white-tailed or Virginian deer, but shorter in the legs and rather stouter in build, and with enormous ears, the reason, it is said, it is called the mule. One of these, and several of the other kinds, were shot, and a quantity of dried venison prepared to be carried on the pack-horse, back to the waggon.

The meat is preserved entirely without salt. Being cut into thin strips, and hung up in the air, it speedily becomes as hard and as dry as a piece of board, and in this condition will remain good for a long time. When it is wanted for use, it is but necessary to soak it in water for a short time, and it softens, and is as good as if freshly killed. The possibility of curing meat in this way gives a better notion of the dryness and purity of the air than pages of written description could do. This was formerly the method adopted by the Indians of preserving their winter stock of buffalo meat; and even salmon can thus be preserved. Flies do not pitch on the exposed strips: indeed, this country, like the prairies, is generally remarkably free from flies.

I have spoken of the scarcity of forests within the borders of Colorado: there is another great deficiency in the territory—that of lakes. I did not see a single lake of large size, though I heard that there was one in Luis Park. This must be a mistake, as I traversed that district in every direction without seeing a large body of water. Pools, such as in the North-eastern

States are called ponds, are scattered about in limited numbers, the largest we saw being about 5 miles across. This, of course, would be a good-sized lake in England, or in Europe; but in this land of big natural scenery of all sorts, it scarcely deserves notice.

It is the position rather than the size of these small lakes which is attractive, most of them being mountain-tarns romantically situated among the rocks. Some are so exquisitely lovely that the Mirror Lake of the Yosemite and similar well-praised pools are not worthy to hold a candle to them. One of them, which is the source of Clear Spring Creek, on the Continental Divide, is a picture of charming picturesqueness, though it is only a few hundred acres in extent, and there is scarcely a tree in the neighbourhood. It is buried deeply amidst broken rocks lying about in wild confusion, and there are several rocky islands in its bed which are bush-covered, and the homes of flocks of wild geese. Mountains tower over it to the height of 4000 or 5000 feet, and the crags and pinnacles of these are reflected on its still surface far more perfectly than are those of the Yosemite in the far-famed Mirror.

The surface of this tarn, which is, so far as I know, nameless, is perfectly smooth, notwithstanding that a cascade falls into it at the south end. Only rarely a faint air seems to find its way down to the water, and a tiny ripple moves slowly across from shore to shore. The cascade falls a distance of about 200 feet; but it is of small volume, and though, in spring, it may bring a larger body of water down from the mountains, it probably dries up in autumn. This, and all the other pools I examined, abound in fish, the most abundant kind being a species of trout, called salmon-trout throughout the West. I tried several baits at these trout, natural and artificial, if I may use so grandiloquent a term regarding my humble apparatus. For rod I had none—a stick did duty for that essential part of an angler's outfit. A piece of string served for a line, a few hooks I had with me; and for bait I first tried such beetles and insects as I could find under the stones. These proving of no use, I tried to make an artificial fly from a few feathers I picked up, with such threads, etc., as could be frayed from my clothing: still without success. But the moment I wrapped a few threads of an old red-flannel shirt round the hook, the fish began to bite, and in two hours I landed a couple of dozen fish, in weight from a quarter of a pound to a pound each, which afforded our little party a delicious supper.

The fish (I do not mean those captured) were very lively; about evening time leaping in numbers from the water and falling back with a splash, which attracted the water-fowl lurking on the bosky islands, which were soon among the shoal, taking liberal toll.

The San Luis Park is bigger than all the others put together, and is probably not less than 100 miles across, with, as far as I could perceive, a tolerably oval shape. Like the others, it is quite flat: the eye cannot distinguish the slightest rise or fall of the ground in any direction. In some parts it is not so well wooded as the more northern Parks; and there are spots which are almost desert in character. Quite a number of streams lose themselves in sinks within its bounds; but there is nevertheless pasturage for immense numbers of cattle. As in the other Parks, there was, even at this time, a number of ranchmen feeding their herds; but the greater part of the Park was still overrun by large crowds of deer and prongbuck, which the cowboys amused themselves by shooting, in season and out. These deer do not occupy the Parks all the year round. They arrive in spring and remain till the fall, going eastward to spend the winter; exactly where, I cannot say, but probably in the southern part of the Mississippi prairies. A few deer are to be found in the Parks throughout the winter, especially wipiti, and the mountain sheep and goats do not seem to migrate at all. As to birds: while some species go away to pass the winter, others come to stay during that season. It is strange that there should be any migration at all in such a mild-climated country, where food is certainly abundant at all seasons of the year.

This is scarcely the place to open up the question of migration; yet I may, perhaps, be borne with if I offer a few more remarks upon that ever interesting subject to a naturalist. There is an incessant migration occurring in this vast country—the whole of America North and South, I mean. If this migration is more active, and takes place among a greater number of species in the spring and fall of the year, there is nevertheless a continual migration of some species or other at every season. Some birds seem to migrate a few hundred miles at a time, if reliance is to be placed on the deductions from time and place where they are found, moving from the northern parts of the United States, and even the British Possessions, to the Southern States and Central America; and in some instances apparently to the lowest States of the Southern Continent. I have certainly seen several species in Chili, Argentina, and Patagonia, which are found also as far north as Canada; and I know that in all these countries they are migratory. In the northern division, at least, many species seem to be almost constantly on the move except at breeding-time: at any rate, it often happens that a species is seen in a certain neighbourhood for a few weeks, or a month or two only, or perhaps, more frequently, after the first-comers have remained a short time they move onwards, being continually followed by others of the same kind: so that, though the species may be months in the same neighbourhood, the birds as individuals are only there a few days or weeks. Many very small and short-winged birds migrate at least 4000 or 5000 miles.

The migrations take place in very varied fashion. Such birds as ducks, geese, cranes, etc., assemble in huge flocks, and migrate in a body. I have seen flocks of the former which must have numbered hundreds of thousands. Smaller birds, such as warblers, and the so-called sparrows of the country, either go in small parties, or flit over the country in a continuous stream of twos and threes. But some small birds assemble in vast flocks for their annual migration, as the bobolink, for example. The flocks of this little creature sometimes blacken the face of the country, so numerous are they. Then the bird-murderer has a merry time of it, and fine sport! Bringing out his old gun, he rams home a "double charge" of small shot, and firing *en enfilade*, kills a hundred or two at each discharge; and while the game lasts, bobolink puddings and bobolink grills are to be smelt, seen, and tasted in every hut and house in the district.

Finally, there are birds of every family which migrate singly or in pairs. This is invariably the case with such birds as eagles and falcons, and many other birds of prey. And many kinds leave a few pairs behind, which remain in their breeding places throughout the year. Of course there are many kinds of birds which do not migrate at all.

Of mammal migration I can say nothing here, but many remarks concerning it are interspersed throughout the book. The migrations of the bison, like those of the passenger-pigeon, are of historical interest: for, alas! they will occur no more.

The eastern part of Colorado is not, strictly speaking, a part of the Great West, for it belongs to the Central Prairie Region; and I do not think it necessary to enter on a description of it here.

As part of the North Park is within Wyoming, so the San Luis Park infringes on New Mexico, and we entered the latter territory by the San Luis route.

Colorado was tolerably well explored by the Spaniards several hundred years before the United States became a nation, and the whole country abounds with Spanish nomenclature; but the political history of "The Eleven Eaglets" is not included in my plan of narrative, and therefore I have had nothing to say on this subject. But it may be noted that there are many interesting relics of Spanish exploration and presence to be found in various parts of the territory.

CHAPTER VIII

NEW MEXICO

PASSING round the base of Ute Peak, an isolated mount 10,000 feet high, we struck the course of the Rio Grande, and moved southward, making for Santa Fé, where we intended to rest for a short time. The country passed through was somewhat dreary, timber appearing to be even more scanty than in Colorado; and the reddish and yellowish rocks were exceedingly arid. Stunted poplars (cotton-wood), aspen, a sort of evergreen oak, and cedar were the only trees recognised, and these were scattered on the face of the hills in a very meagre way. Cacti, of which we had seen traces in the northern terrritory, here rapidly, as we moved south, became a characteristic vegetable genus of the land; and agaves were also seen, together with a few plants and shrubs, which I thought it probable had been introduced from the eastern side of the Continent by the agency of man.

Although it was still quite early in the fall, as we approached Santa Fé, a sharp shower of mingled sleet and snow fell. It did not lie on the ground, but the opinion of all of us was that the weather was much colder here than in the land we had just left.

Santa Fé is the oldest city in the West; and the inhabitants claim that it is the oldest in North America.

Like many other old towns of Spanish origin in the United States, it is an exceedingly sleepy place: and during the 350 years it has been in existence, so far from making progress has it been, that it has actually greatly retrograded. This is strange, because for many years it has been an important place, the great trail from St Louis to Santa Fé being one of the best known and most used in the United States. Annually there came hither a train of from 300 to 400 waggons, travelling overland: a fleet of prairie schooners, in fact, besides many independent individuals who, like myself, chose their own route, and faced their own risks. As the merchandise brought by these waggons was distributed from Santa Fé, and there were moreover several go-a-head American firms trading in the city, it is passing strange that it has never shaken off its sloth and got upon its feet. But it is so with all the towns of Spanish foundation. Perhaps I had better say Spanish-American towns, which I have visited, for doubtless some of my critical friends are well able to correct me, and will show that places I think to be of "Citizen" *make* are really born of the haughty Don.

There is something in the very air of Santa Fé which is seductive, and provocative of indolence; and I soon began to feel that it would be dangerous for me to prolong my stay there. There is a good deal of Spanish blood still in the place; and I saw more than one handsome dark-eyed girl glancing from the balconies at me with coy, but coquettish, curiosity; and others were passed in the streets. Many of them, perhaps, like the men, are Mexicans; but they seemed to me to be prettier than the average Mexican women, and to more nearly resemble the Rio Janeiro beauties with whom I was, at a later period, so charmed.

They wear short skirts, displaying splendidly developed and shapely ankles; while the ladies of Brazil adopt long and trailing dresses. Of course, they are of different nationality: but really the difference between a Spaniard and a Portuguese is no greater than that between a Yorkshireman and a West-countryman.

The houses of Santa Fé are built of stone in a few cases, but far more generally of a kind of brick, which has not been burnt, but has been hardened by exposure to the sun. Many of them are provided with galleries, or balconies, and the style of architecture is that found in all Spanish towns, viz. blank walls, with latticed doors and few and narrow windows toward the street. There are, in some instances, considerable pieces of ground enclosed with the houses; the houses are well detached from one another; and the streets, long, crooked, narrow, rambling, full of sly-looking corners, suggestive of clandestine meetings and jealous lovers lurking with hateful stiletto in hand—instances of which acts are by no means uncommon, even now.

The old palace, in which the first Spanish governors of the territory resided, still remains apparently entirely unaltered, or meddled with, in recent days: an instance of conservatism which does high honour to the care and good taste of the United States officials. I did not go over the building, and there is nothing very striking on its exterior.

The population is only some 4000 or 5000 persons. It is asserted that in the palmy days of the overland route, it rose as high as 9000 or 10,000, but that prosperity did not last, and it rapidly sank again. There is, however, a floating population, so to speak; and occasionally there are many hundreds of miners congregated in the city; but probably Santa Fé will never be a very important place. It is situated at a considerable elevation above the sea, in a park similar to those of Colorado, but less fertile and not so flat. The surrounding mountains are some of the highest in the territory, which is essentially a mining country; the ranching interest, at this time, not being worth mention.

Continuing the journey south, we were much struck with the similarity of the scenery to the deserts of California and Oregon. It is of the wildest description; vast broken rocks alternating with patches of saline desert, sandy plain, and lava lakes. Although several great rivers run down the territory, water is scarcer in some districts of New Mexico than in any other part of the West we traversed, and we often suffered much from an insufficient supply. The lakes in this part of the country seem to be all what are locally called "soda ponds," though many of them are saline. The brooks also are strongly impregnated with various salts, and after very short courses sink into the ground.

With the exception of three or four kinds to be mentioned presently, the land is almost destitute of mammals and birds; and other forms of life are all scarce compared with the countries previously described. Therefore I had some difficulty in following my own advice, and watching the flight of birds towards water. The birds, truly, were seen; but the distance they evidently had to go to reach the much-desired element was so great that we could not follow. One of the best plans I found in practice here was to give the horses their head and let them choose their own road. Horses (these wilderness-bred animals, at any rate) evidently can smell water a goodly distance; and we several times found springs by following their guidance, though this sometimes took us out of our way.

Hundreds of travellers are known to have perished in these deserts; but I stick to my text that they need not, in most of the cases, have done so. Our own plight was, more than once, perhaps as desperate as that of any men who ever crossed this region. Great relief was obtained, and the lives of the horses probably saved, by using the sliced leaves of cacti and agaves, as well as the fruit of the former. By pressing the leaves an abundant supply of refreshing and exceedingly wholesome juice can be obtained. The prickles must be removed before horses can be fed on the sliced leaves; and this is a wearisome job, but that can scarcely be complained of when life is at stake. The leaves of the agave are thick and fleshy, and full of juice, and afford excellent fodder as well as drink, and, together with the leaves or stems and fruit of cacti, are one of the best febrifuges to be found in the country.

In the south of the territory the candle, or candelabrum, plant (*Cereus gigantia*) is abundant. This species of cactus grows to the height of at least 40 feet here; but in the adjoining territory of Arizona, I have seen them nearly 30 feet taller. They grow upright, looking, when not branched, like tall posts: hence I suppose the name of "The Staked Plains" given to ground covered with them. The Staked Plains are in Texas, but they enter the south-east corner of New Mexico. When the plant (it may almost be termed a tree) is branched, its singular right-angled arms stand up parallel with the trunk like the branches of a candelabrum. A plain covered with these singular cacti, which sometimes grow pretty thickly together, is a singular, and, at evening time, a weird sight. Several species of small birds build their nests in the forked arms of these cacti, absolutely secure from all terrestrial enemies, for no animal or snake dare ignore the mighty prickles of this plant.

The *cereus gigantia* bears a fruit which is a bright green colour externally, smooth, oval in shape, and about the size of a goose's egg. If not exactly delicious, the crimson-coloured pulp of this cactus-apple is most refreshing as well as nutritious. As it is impossible to climb the plant, and ladders are not usually found in the desert, the only way of obtaining this fruit is to poke it off with a long stick. It can be eaten either raw or cooked, and is perhaps preferable in the latter condition.

Besides this cactus, there are others which yield excellent fruits, generally about the size of a filbert, and there is also a species of prickly pear in some parts of the country. The flowers of many kinds are exceedingly handsome and curious, some a bright red, others a pure white. And another curious plant in these southern deserts is the "Bayonet-tree," a species of zucca, so called from the sharp knife-like leaves, which are capable of inflicting a nasty wound if accidentally run against or incautiously handled. Some of these plants have a singular appearance owing to a fringe of hair-like filaments hanging down from the edges of the leaves. The Indians use these filaments for sewing and tying purposes, and even twist them into a cord or small rope. Some of this rope which I obtained was found to be of great strength and very durable. I have since learned that this fibre has become an article of great use to civilised men: let me hope that they will use it with discretion, and not work it off the face of the earth, as they have so many useful creations great and small.

The above are the most characteristic and curious members of the vegetable kingdom found in New Mexico. Of lesser plants there are many which, no doubt, would interest a botanist, and not less so a lover of Nature; but much space cannot be devoted to descriptions of plants of which I cannot give the specific names. There is a marked difference between New Mexico and Colorado in this respect at least, that, while the more northern territory abounds with beautiful flowering plants, this class of herbage is very deficient in southern landscapes. Yet there are, in places, flowers both singular and beautiful. One remarkable but inconspicuous weed deserves notice as it seems to be a kind of fly-trap. The stems exude a sticky, tenacious fluid, which holds fast and speedily kills any insect pitching on or flying against it. Many of the weeds were covered with flies and beetles, which had been unfortunate enough to come near this sticky trap. Perhaps they are allured, for on putting a piece of the weed against the tongue, I found that it had a distinctly sweet taste. Flies as large as a humble-bee were caught in the toils of this plant, which does not grow above a foot or 15 inches in height, is not abundant, and is, apparently, very local: for I found it only in a confined area south of the Gallinos Creek, a tributary of the Pecas River.

Several kinds of snakes infest these desert regions; and though they may not be often seen by persons travelling straight across the country, naturalists searching among the rocks, etc., may run considerable risk, and it is as well to have some weapon in the hand when searching broken ground, or among herbage. I used to carry a scythe, fastened to a straight pole, and sharpened on both edges, a most formidable weapon, similar to those with which the Poles had tickled their

Russian tyrants a few years previously. In the hands of a strong man this weapon is good enough to face a grizzly with, for no animal whatever could stand against its terrible sweeping cut, or equally deadly thrust, while such creatures as rattlesnakes, and similar vermin, are instantly disabled, if suddenly come upon.

The common deer, as we may call the white-tailed species, prongbuck, and wipiti, are said to be found in New Mexico; but we did not see any deer at all within the bounds of the territory. They are probably seldom found south of the northern Parks and mountains. The chief animals we did meet with were skunks, coyotes, badgers, hares, and minks.

The skunks were not plentiful, being seen three or four times only: but this animal was met with in Wyoming and Colorado, where it seems to frequent certain tracts in particular. Here, one was found under the waggon one night trying to climb up to a couple of recently killed hares. On being disturbed it attempted to run away, but was killed by one of the dogs. In dying it emitted its filthy odour, but the dog was not sprinkled: they never are, according to my experience; and the assertion that dogs will not attack skunks is absolute nonsense. I have seen scores killed, and known men to keep dogs for the express purpose of hunting them. If the odour is intended by Nature as a protection to the animal, it most signally fails of its purpose.

The skunk killed was a young one; but the full-grown animals, while without doubt of the same species (*Mephitis mephitica*), seemed to be under-sized. On the other hand, a badger, which was seen the next day, was an unusually fine animal. Observing certain markings on it which led me to think that it might be a new species, I tried to find it; and, while searching the holes and clefts in the rocks, I disturbed a whole family of skunks, which seemed to consist of the parents and five half-grown cubs.

The badger was not found, but subsequently, in the southern part of the territory, the animal was found to be abundant, and I obtained several skins. The only difference I could perceive between it and the common badger was that this New Mexican animal had an irregular white stripe down the middle of the back. It may be considered, I think, a local variety. It was probably frequently seen further north while I was watching at night, but mistaken, in the gloom, for some unknown animal.

The mink was seen only once, at the head of Mintado Creek, where it occupies the rocky gorge, a spot remarkable for its deep, quiet pools. There is rich herbage here, but very few bushes or trees; and the little animals, which are about 16 inches long, exclusive of the tail, which is another 6 or 7 inches, greatly resemble minute otters. They are of a dark reddish-brown colour, the fur resembling velvet in appearance.

Coyotes are numerous, and the hares exceedingly so. They are found almost everywhere, but most abundantly in the Parks. These hares, called rabbits throughout the West, are, considered as food, dry and flavourless; but they nevertheless afforded us an agreeable change in a country where fresh meat is rarely obtainable.

The coyotes are bolder here than in any other district where I have met with them; and though they are, on the whole, of nocturnal habits, they are often seen about during the day, and always, in numbers, early in the evening. Small animals and birds, killed for food, used to be hung on the side of the waggon until wanted;

and when the horses were hobbled and turned loose to graze, the men would saunter about the country to smoke and amuse themselves, leaving our travelling home unattended and unwatched. On one of these occasions I was sitting inside, quietly writing at the little folding table used for that purpose, when my attention was attracted by a slight noise. Cautiously looking out at the window, I saw three or four coyotes sneaking round and under the waggon; and one of the number was making frantic efforts to reach some game hanging at the side, springing and endeavouring to help himself up with his paws. The attitudes and movements of the little animal were most graceful, and I watched it with great interest, noting that it sprang upward a sheer 6 feet at least. At length it contrived to grab the nose of a suspended hare, hanging on by its teeth for several moments, while it tried to scramble up the vertical sides of the waggon, shaking the hare meanwhile to disengage it. Not succeeding in this, it was obliged to release its hold, and drop back to the ground. But it continued its exertions, assisted by two of its companions, and at length tore down a duck, which was ready plucked and destined for supper. Thinking it time then to interfere for the protection of my property, I rushed to the door; but before I could seize a gun, and get out of the waggon, the coyotes had disappeared, and the duck with them.

After that we were somewhat troubled at night-time by these animals, which came prowling about to see what they could pick up. They must have followed the waggon, for this continued for three days, and a distance of fully 50 miles. It is the only occasion on which anything of the kind occurred with coyotes, though often I have known the common wolf to follow the waggon for more than a week, the howling of a couple of dozen of these animals being sometimes such a nuisance that I have arisen in the middle of the night, and fired a chance shot at them, which was a hint they were never slow to take, though when starving they would appear night after night, always keeping at such a distance that they could not be seen. At such times they would eat scraps left on the ground, but were still too wideawake to be trapped. Very rarely have I succeeded in trapping wolves. But this is a digression, for no common wolves were seen in New Mexico.

Needless to say, in all the States herein described I met with thousands of animals of all classes which cannot even be named without turning the book into a mere catalogue. Only when there is something uncommon to note can the animal life of the country be referred to; and here I may notice a class of creatures which seldom come under the observation of a traveller, or, at least, are thought worthy of half a page.

Looking at the arid wastes of this land, its hard-looking, bare, and sun-baked rocks, its want of vegetation and lack of all kinds of moisture, one would think the plains of New Mexico as unlikely a place for the habitat of slugs and snails as the desert of Sahara; nevertheless there is a very curious little slug found here, and that on the borders of saline lakes and pools of all spots. This, I think, is extraordinary, considering that salt is the most deadly of poisons to all land molluscs.

These slugs have a bluish line running down each side of the body, and a row of spots; and, as might be expected from the character of their habitat, are dry and hard to an unusual degree for their family. They are very small, not an inch long, are found five or six together under stones; and at night come forth and climb to the very summit of weeds 4 or 5 feet high, where they feed on the buds.

It is almost as remarkable that there are snails of considerable size in the bare deserts, and that in the apparently driest spots. These may be found hiding in the tufts of hay-like grass. Another species is found under the sage-bushes, and yet another, a very small one this, on the giant cactus. There are snails in all parts of the West, some of them with handsomely shaped or coloured shells.

Birds are scarce in New Mexico. What species occur are found also in Arizona, and will be noticed in the account of that territory.

The Rio Grande del Norte of American geographers, Rio Bravo del Norte of the Mexicans, and plain Rio Grande of the people of the land (Rio being pronounced rīo by Americans) is the largest river in New Mexico, and runs in a tolerably straight course right down the territory, yet only a small portion of its entire course is within the State bounds. For the Rio Grande is nearly 2000 miles in length, though, for such a course, it is the most fiddling river in America. Within the boundary lines of the territory it generally runs in cañons of great depth with vertical, or nearly vertical, walls; but in view of the much that has been written about cañons, and what I must yet say of the mighty chasms of the Colorado, the natural features of the Grande will be passed by. The body of water in its channel is never in any degree proportionate to its length and breadth, and it is not navigable within the territory, nor, indeed, anywhere but on its lower reaches. I have seen some places almost dry, and it is fordable with ease at innumerable spots when the water is low; yet in due season there are mighty rushes of water, the product of melting snow, or storms, up the country. Then should any unfortunate traveller be caught in a portion of the cañon where the enclosing walls render an immediate escape impossible, his fate is assured. He may hear the roar of the oncoming waters for twenty minutes, or half an hour, before they actually reach him, for they swirl, twist, and evolve huge curling waves, with cruel slowness but overwhelming force, and the wretched man is not drowned but ground to fragments by the violence with which he is dashed against and swept over the ragged rocks in the bed of the river.

The sight of a sudden torrent in the Rio Grande is one of the most appalling scenes on the American continent. It is grand, no doubt, but too terrifically so to be witnessed altogether with equanimity. Possibly the sight, as we saw it, is of rare occurrence, or only to be seen at certain of the narrowest gorges of the cañon: for there were people in the region, knowing the river well, who had never witnessed such a display of furious force as that I described; yet I certainly did not exaggerate, and whatever may be said about the usual state of the current I had proof on other occasions that the rise of the river is sometimes very sudden. Huge blocks of rock were moved freely; in some cases masses 60 or 70 feet long and 30 broad were turned completely over. Some miners from Manzano afterwards reported that there had been a cloud-burst in the north, and there was much talk about it, proving that such visitations were not of common occurrence. This probably was the cause of the sudden flood. Two days afterwards, 20 miles lower down, we forded the river with ease! It is certain that a river which rises and falls with such extreme rapidity can never be navigated.

The course of the Rio Grande in the lower part of the territory is extremely tortuous. It doubles and loops almost as much as the Mississippi, and this must be the reason of the slow advance of freshets, and perhaps a sudden flood is, to some extent, jammed by the character of the course. The cliffs and country near the river are among the most destitute of vegetation of any in the territory; there is, however, plenty of grass, and it has been proved that the ground only wants irrigating to make it as fertile as any to be found in a western State. Unfortunately, the rivers all lie so deep that they are almost worthless for irrigation purposes.

In spite of all drawbacks there were indications that the valley (if it may be so called) of the Grande would become a chief centre of population. There was already a fair sprinkling of ranches, farms, and young towns—some of them youthful in population only, for they were founded by the Spaniards, and can boast of an antiquity of two or three hundred years; which, in the United States, is very ancient indeed. Sheep and cattle are raised here, the former especially. The ground is only cultivated under exceptional circumstances, and in very limited areas.

Proceeding westward, we passed over some very solitary tracts, where for hundreds of miles we saw no indications whatever of our fellow-men. The first people met in this district were some Indians, who were friendly, as they mostly are in this territory, although they belong to warlike tribes, who in former days completely mastered their Spanish conquerors, and compelled them to give complete freedom to the native tribes, granting them release from labour in the mines, and from tribute. In fact they drove the Spaniards out of the towns and forts and held uncontrolled possession of the country for a period of nearly twenty years, during which they destroyed all mine shafts, and many other works of the whites. The territory was, at the time of the journey under description, far more populous than either Wyoming or Colorado; but I did not learn the numbers. The Indians are a very few thousands in number, and are found mostly in the east, in the Staked Plains region, and in the west, the presence of whites in the north and middle of the territory having probably driven them to the frontiers.

As we left the desert plains and advanced towards the mountains we found ourselves once more in the midst of dense forests, an experience we had not had since quitting Wyoming; and the trees, too, were of a size and height such as we had seldom seen since leaving the Coast States.

On the lowest of the foot-hills the giant cacti grew in such numbers that they shut out from sight the country ahead, and had the appearance of a forest. They were really always some feet apart, never growing sufficiently close to choke each other, as forest trees often do; and they so appropriate all the moisture of the ground that no trees or bushes can find sustenance near them. Here they were in all stages of growth, some 50 feet high, others just appearing above the ground as a rounded, prickly mass, which it is most dangerous to tread upon. The spines will seriously lame a horse, and they seem to poison a wound, in spite of the absolute wholesomeness of the plant itself. At any rate, I have seen men and horses with greatly inflamed wounds from pricks of these spines.

After clearing the cactus woods exclusive, we found plants of this class scattered among pines and other hard-wood trees. On what may be called the hills in contradistinction to the mountains, we found many trees that were familiar to us: cedar, oak, tamarack, hickory, with the ubiquitous poplar and aspen. The mountains were covered here, in the west, to the very summits, with pines of noble size and proportions—120 to 150 feet high—pigmies compared with the giants of the Coast ranges; but yet far finer trees than any we had of late met with.

Still, even in these forests, mammals and birds were remarkably scarce in species, though the individuals of some kinds were very numerous. Hares, for instance, almost swarmed, and badgers were plentiful. The coyotes were abundant enough in the plains, and on the foot-hills, but few were seen on higher ground.

Almost nightly, small birds congregated near the waggon when we camped for the night, though few might have been seen during the day. They also appeared in the morning, being tame enough to perch on the top of the waggon, and hop about the horses' hoofs. They consisted of several species of tits, wrens, and warblers, and similar little creatures, known to the men mostly by such popular names as desert-sparrows, tree-sparrows, peewees, chippies, etc., etc. These birds all retire at an early hour. The moment we halted and began to hobble the horses, they would appear, one or two at a time, till we had several dozen around us, but they all went again before the sun had set. Struck by the regularity of the retirement, I paid particular attention to their movements. A few would linger until the sun touched the horizon, but before it had sunk completely out of sight, every one had disappeared. Not a single small bird could be found during twilight.

In the morning the first to appear was a graceful little thing about the size of a wagtail, and something like one in habit and appearance, called by the men a bobtail. This was followed by the "sparrows" and tits, the wrens coming last. These last, and the tits, were as fond of a piece of fat meat, or of picking a bone, as their namesakes are said to be in Europe; but the chief objects of search were the crumbs and broken food dropped on the ground. This seems a strange taste for desert birds which cannot find bread or biscuit except under the most exceptional circumstances. When they get the chance, however, they devour crumbs of all sorts of cooked food with avidity.

While small birds nearly all disappear with the sun, others only appear with the moon and stars. Of these I had but the scantiest opportunities of ascertaining the species. A large brown hawk was often seen hovering over the forest at a great height, but I could never get near enough to ascertain the species. In the forest itself the trees grew so thickly together and the gloom was so intense, especially at evening time, that very little could be learned within its shades. It was, however, occupied by owls and some kind of goat sucker, which had a different cry to any other I have heard. It sounded like the words, uttered slowly, "Whop-whop-whir-whop!" and then very fast, "Tshir-tshir-tshir-tshir-r-r-r-r-r-whop!" This bird was exceedingly shy, so that all my efforts to catch a glimpse of it were exerted in vain.

Often, before lying down for the night, I would saunter some distance from the camp fire, to meditate and listen: for I love the sounds of the desert, however few and feeble they may be; and the odours of the night air in these glorious wilds are always delicious, and a looked-for enjoyment at the close of the day.

It is a peculiar sensation to stand alone in a solitary land, with, as far as one knows, no other human being within hundreds of miles, and darkness on all sides. The sense of loneliness is overcoming: and, if indeed the human race sprang from a single pair, it is surprising that our first ancestors retained their reason. I am exceptionally constituted myself, inasmuch as I love solitude, and can endure it, in comparison with what I have noted in other men, to an extraordinary degree; but the absolute solitude of a lone land could not be endured by any person, I feel convinced, for a prolonged period without inducing a diseased condition of the mental faculties. Robinson Crusoe is a delightful fiction; but twenty years on a solitary island! Would it not end in insanity before a fourth of that period had expired? Yet in one point I can confirm the truthfulness to Nature of Defoe's charming story. *Solitaires* always evince a great liking for pets, and deprived of the society of their own race, invariably seek that of the subject animals. Robinson Crusoe without his monkey and his parrot would not be Robinson Crusoe.

But the solitary night-watcher on the plains. Let him keep still and listen. Those sounds which are in his immediate neighbourhood will probably be the first to attract his attention. That whirring, buzzing sound reminds him of the cockchafers he pursued when a boy, and treated so cruelly. The sound here comes from a cloud of beetles, though not cockchafers, which fly by night; and he will probably get a sharp rap or two on the face from the blundering things. These beetles appear in great numbers after dark, flying low, and making a combined hum, which may be heard a distance of several hundred yards.

There are other insect noises, the sharpest and most predominant of which is the chirping of the kittydads and field-crickets which swarm on the plains, especially where the ground rises into gently-sloped hills of a few hundred feet in height. These creatures keep up their calls till about one o'clock in the morning, at which hour the coolness of the air becomes very keen, and they probably retire to their holes to avoid the cold.

A murmuring, half-frightened, half-complaining sort of chatter is that of some roosting bird, which has been disturbed by your passage near the bush where it is resting; while the distant bark, which seems to be more than a mile off, and is only faintly heard, is that of a dog-coyote; and if you listen carefully you will presently hear an answering bark, very different in intonation from the first, of the female who is answering his challenge.

Possibly a startled cry, a scream, a roar of agonised fright, may reach your ear, and you may know that the prowling puma has made a successful pounce upon some unwary victim; and if you have courage enough to silently creep forward, and the wind is in your favour, you may presently get near enough to hear a soft, flabby, tearing sound, and you will know that the great cat is stripping from the bones the warm flesh still full of wet blood. If you hear the sharp sound of crunching bones, you will know that it is a bear, and not a puma, which is feasting; and you will probably not care to stop to listen to the complaining grunts and snuffles to which Bruin always gives vent when eating. The large marrow bones are always eagerly sought by a bear, and he will crush them between his molars as soon as he can strip the flesh from them and get them between his jaws. Then you will hear him suck, suck, suck, with a smacking of the lips, like some vulgar yokel over his beans and bacon. You had better not stop too long, though: for Bruin is jealous of interruption when feeding, and this is a time when he is particularly likely to attack an intruding human being.

These are some of the night sounds which a silent listener is likely to hear, and will give hint enough that there is much in the wilderness, even in the darkest hours of the daily revolution, to interest the observant lover of Nature. He may very possibly meet with *sights* too, especially in districts which have not been much disturbed by hunters, in the form of dark shadows stealing stealthily past him. On some of these night watches I have had both bears and pumas pass within a very few yards of me, apparently surveying so curious an animal as man with astonishment, and pondering whether such a singular-looking creature was worth sampling. Apparently "the answer was in the negative," to use what seems to have become a parliamentary term, for I was never attacked on these occasions: and, on the other hand, I never became the aggressor. For shooting dangerous animals, at all times a risky business, becomes a doubly ticklish affair when there is not sufficient light to make the marksman tolerably sure of his aim.

In many parts of this territory hot springs abound. I was often asked by ranchmen and shepherds if I had seen this or that locally famous fountain; but the first I actually came across was on the western borders near Corduroy Cañon. It was an intermittent spring, the water lying deep in a circular hole, from which it bubbled up every few minutes, but with irregular intervals. Several other hot springs were found a few miles further north.

While in this neighbourhood we met a herd of cattle being driven from pasture to pasture, a common practice in the West, and shared a fat beast with the boys. A quarter of beef being placed on the top of the waggon for the night, previously to drying, in the morning I found a couple of blue-jays worrying away at the particles of fat, and enjoying a delicious feast. They flew away on my appearance, but soon came back, and remained fluttering backwards and forwards until the horses were put to the waggon in preparation for departure.

The birds were not the common blue-jays, but the *Cyanocitta mocrolopha* of the museums. It is a very common bird in the Coast States, and was from time to time seen in all the South Central States; and it is one of those little creatures which cannot fail to greatly interest the true naturalist, on account of its bold and lively habits. It seems to be gifted with a considerable degree of inquisitiveness, and it would sometimes spend hours examining the waggon, and has even entered it when no one has been by, and flown off with such morsels of food as it could secure. On one occasion a bird of this kind attempted to fly off with a pocket-handkerchief, doubtless to incorporate it in its nest, but the task proved to be beyond its strength. The bird is fond of playing with rags, and will fly off with such scraps of linen and paper as it can secure. A young bird which I kept for a long time would amuse itself by pulling about any pieces of rag it could find; and would attempt to tug the handkerchief from the breast-pocket of my shirt. It never hid things like the magpie, but made quite a collection of such articles as pens, pencils, thimbles, percussion caps (which it obtained by wrenching open a leather pouch), pins, needles, pieces of paper, threads, hair, feathers, etc.: some of which it found about the waggon, and others were brought in from outside; for it had its liberty, and a favourite perch with it was on the back of one particular horse, and at other times it took up its position on the half door at the front of the waggon, and chattered and screamed by the hour at a time. It was sometimes very noisy, and learned to whistle like the boys, and make a number of sounds which were evidently intended to imitate those which had attracted its attention. It was intelligent and familiar, and would fly 50 or 60 yards to meet me when I approached the waggon, and often hopped from boy to boy among the men. It did not like to be handled, but if not touched would often take a perch on my shoulder. It lived about eighteen months, and died suddenly, from no apparent cause.

The plumage of this jay is of a brownish-black colour, finely mottled and marked with light blue, and it is remarkable for its helmet-shaped crest. In a wild state it is at first somewhat cautious, but if not persecuted it becomes as bold and familiar as an English house-sparrow.

Among the mountains of the western side of New Mexico, as in those of other parts of the territory, there are many pretty Parks of small size. Most of them are well wooded, and not a few are quite fairy haunts, being a tangle of beautifully-foliaged and blossoming shrubs. Here I found violets of a yellow colour, and without scent.

These tangles, I discovered, were favourite haunts of a number of pretty lizards of the *anolis* family, which were sometimes so numerous that they might be said to have swarmed there. There were also other lizards of at least three distinct species, but all of them small in size. On the desert plains, at the foot of the hills, the Arizona poisonous lizard was seen; but of this more presently.

Snakes also abounded in some of these little parks, being apparently attracted by the number of lizards, on which they prey. A snake was seen to dart on a lizard, and begin to gorge it. It was compelled to release its prey, but the lizard was weak, and seemed to be hurt; and though care was taken of it, it died in a few hours: yet the snake was not a poisonous one. It seems as if the gastric juice, or saliva, of some reptiles is poisonous to their victims: can the silly superstition of the venom of toads, etc., have arisen from observation of some such incident as that just mentioned?

It would be interesting to know how it is that the ground of all the Parks, great and small, in this region, is so perfectly flat. I could perceive no reason for it, any more than I could for the fact that the vegetation within the Park always differed from that in the surrounding country. River agency did not seem to have anything to do with it, because the character of the Park was the same whether a stream flowed through it or not. One or two of these Parks were simply recesses in the mountains, there being no way through. One was a great rift in the rocks nearly a mile deep, and with walls 1000 feet high. It gradually dwindled in breadth to a mere crack in which there was but just room for a man to squeeze his body. In this case, the surrounding rocks, although vertical, were ragged and broken; and an active man might, perhaps, have, in a few places, climbed to the plateau above. In the narrowest part of this gorge, several pines which had fallen had become jammed, forming a bridge several hundred feet above the spectator.

Two days' journey west of this spot, and somewhere very close to the territory frontier, we found some remarkable ruins of seemingly ancient Indian origin, but with traces of Spanish handiwork also. These consisted of low, square houses in the Indian style, but of much greater architectural finish than those we, at a subsequent period, met with in the forests of the upper Purus in South America. Some of these houses, or huts (for they were mostly one-storied), had been added to, and altered, by Spanish workmanship; and there seemed to have been a mining village, or station, here formerly. There were traces of horizontal shafts driven into the rocks, but they were all securely blocked. The only one we succeeded in penetrating into scarcely had the appearance of a mine, and I am inclined to think it was intended for a hiding-place.

The entrance to this gallery was partially blocked by débris which had fallen from the rocks above: there was only sufficient room left for a man to crawl in on his hands and knees. We cleared away some of the rubbish, and, furnished with lanterns, explored a considerable portion of the gallery, which was of singular formation. The entrance was 6 feet high, sufficient to permit of men walking upright, though it was a bare 3 feet wide.

The work of cutting this passage through the hard rock must have been immense; and probably it had been effected by forced Indian labour. A hundred yards from the entrance the passage suddenly widened to about 8 feet, but remained only 6 feet high, the rocky walls and roof being hard as granite and perfectly dry. There were several side galleries, driven at right angles to the main one. The air in them was so bad that only one could be explored to the end. It ended abruptly, and we found nothing to indicate for what purpose it had been excavated. It was only 4 feet wide, and nothing whatever was found in it.

Continuing along the main gallery a distance of about 300 yards, we found it slope upwards with a sharp rise, and after proceeding along it another 200 yards, were obliged to stop: for, either on account of want of ventilation, or because the air was vitiated, we could not breathe without extreme difficulty. We could see that the gallery still sloped upwards, and every now and then we passed side borings at distances of 20 to 50 yards from each other.

Two hundred yards from the entrance we found the bones of three human skeletons lying in a heap together; and 60 yards further in was a fourth, lying across a sort of box, or wooden tray, which contained a knife and several small hammers, shaped like picks. This last skeleton was that of a small woman, or girl. The bones did not seem to have been at all disturbed; and tresses of long black hair lay by the skulls, proving that these persons had been of the Indian race. Iron rings were let into the walls at frequent intervals, and from some of them iron chains still dangled; but there was no appearance of the dead having been confined while alive: on the contrary, they had all the appearance of having died where they lay; and the chains were found to be just the width of the gallery, and could be hitched over iron knobs on the opposite wall. They therefore seemed to have been used as a barrier. The presence of these rings and chains is conclusive proof that the Spaniards or some other Europeans had been in this subterranean passage, and used it for some purpose.

A careful examination of the rock in many places failed to show the slightest trace of gold or other metal, and therefore it is impossible to think that this gallery was used for any mining purpose. It was probably a hiding-place and secret store-house; and the peculiar conformation of the passage seemed to be well adapted for defence, and preventing an enemy from smoking out fugitives who might have taken refuge here. The Indian skeletons were probably the remains of some brutal Spanish murder, aboriginal life under the rule of the Don being of no more account than that of vermin.

In several of the houses there were Spanish utensils and articles of furniture, though these had been disturbed by some previous visitor. In one house was a chair which fell to pieces on being handled, for it was thoroughly worm-eaten. Some prints of the Virgin and the Crucifixion, hanging on the walls, were in better preservation; though on one of these some impious cowboy had scrawled his ribald verses, thus leaving evidence that the place had occasional visitors—the reason, probably, that nothing of any value was left behind, if I except some curious pieces of porcelain which I felt justified in appropriating.

From New Mexico I, of course, passed westward into Arizona; but it may be as well to remark here that at the time of my first exploration of this region, I considered, and have termed in a former work, a vastly greater tract as New Mexico, than is now officially known by that designation. It is only after a very careful study of the best modern maps I could procure, and with the assistance of an American friend who thoroughly knows the ground, that I have succeeded in fixing localities to the extent indicated in this book. The map I had with me during this journey was so poor and defective that it was of no more use than a piece of waste paper; but, fortunately, many of the old local names have been retained in modern maps, and this has been of great assistance to me in fixing the locality of places visited. These remarks, perhaps, will explain how some few mistakes, which have been pointed out, occurred in writing the work in question, and dispose the critic to be lenient with me. At the time of making most of the journeys herein sketched I was absolutely ignorant of the political boundaries and circumstances of the majority of the "Eleven Eaglets." For other details of these Western journeys our "Great Forests and Deserts of North America" may be consulted. There is matter therein which we are not at liberty to repeat.

A journey of ten hours through a narrow pass leading over a range of mountains, which I calculated to rise at least 7000 feet above the surrounding country, took us, I believe, from the territory of New Mexico into that of Arizona; but the precise time or spot where the crossing took place I am ignorant of.

The pass had more of the character of a narrow valley than a cañon, the sides sloping up at an angle low enough to admit of their being densely clothed with the finest pine forest I had seen for a very long time, many of the trees being at least 200 feet high. This forest covered an immense area, as I could see from certain of the high points of the pass.

CHAPTER IX

ARIZONA

AFTER emerging from the pass we descended into a valley which was well grassed, and dotted so thickly with clumps of trees as to give it the character of an open forest; and as we advanced we soon discovered that this territory was the best timbered which we had found in the Middle Western States. The valley was wide, and westward we perceived a long wall of stupendous cliffs. These cliffs, on approach, were found to be impassable, and we travelled many miles along their face before we found an opening. Four or five times we entered cañons formed by the passage of streams, in hopes of finding a way through; but all proved impenetrable to a waggon, though we followed two of them many weary miles before our way was finally found to be blocked. More than a fortnight was thus spent before we got through, somewhere south of the river known as the "Little Colorado."

Here also we found many of those Parks which are one of the most distinguishing features of the Southern Middle States, but they are nowhere of such size as in Colorado; and here in Arizona they are sometimes completely covered with forest growth, and not merely with groves and solitary trees.

I was not long in perceiving also that this territory was the wildest portion of North America; and though I now know that there were several thousand white people in various parts of the 120,000 square miles which constitutes the territory (twice the size of England) at the time of my journey, it seemed to be a completely uninhabited wilderness. I afterwards found the Indians numerous; but these men, some tribes of whom were rather dangerous neighbours, were confined to certain portions of the land. The wandering tribes seldom appeared in the interior of the territory, and the only people we met there were a band of white renegadoes and Red outlaws, with whom we were unfortunately compelled to engage in a sharp skirmish, which ended in their retreat.

Arizona was explored by the Spaniards very early in the sixteenth century, and they must have had establishments in the country, for we met with many relics of them—the only evidences of civilised men which we did find. Here were no wandering cowboys with their herds of fattening cattle, no roughly constructed homes of ranchmen, or log-huts of trappers; no patches of forlorn tree-stumps half buried in the chips left by the lumberman; no smoking chimneys or blazing camp-fires, but to all appearance an unbroken and unviolated tract of virgin country — a country in which the forests had not as yet paid tribute of even a single tree to the white conqueror of the land.

South of the Little Colorado River the mountainous cliffs have a somewhat singular formation, advancing into the plain in a series of enormous buttresses, each many miles in extent, and having a deep valley between each two of them. These valleys slope upwards, and are different in appearance to the parks, ultimately merging in a very much elevated plateau, from which rise many peaks of unmistakable volcanic origin. On the slopes of one of these peaks we found several hot springs, similar in all respects to those of New Mexico. Some of the peaks were similar in outline to the great mountains, Shasto, Hood, etc., of the Coast States.

One which we ascended, rising about 6000 feet above the plateau, and which seems to be nameless, had the side blown out on the south slope, affording an easy access to the crater, which was choked with a dense growth of bushes, shrubs, and dwarfed trees. Near the middle of the crater were several deep holes, the bottoms of which could be reached by those who cared to risk the descent, which was rendered dangerous on account of the loose nature of the sides.

By the aid of ropes and a roughly-made alpenstock, I descended into the largest, about 100 feet deep. There was quite a menagerie of animal life imprisoned within it, as is often the case in natural crevices and holes (see p. 150), these little creatures having slipped in and been unable to climb out again. Two or three snakes retired hissing to their holes; rats, mice, lizards, and a hare or two hastily retreated to similar hiding-places; and there were a great number of smaller creatures, as beetles, scorpions, etc. These animals, we supposed, subsisted by preying on one another; but there was a certain amount of herbage within reach about the sides of the hole, notwithstanding the comparative absence of light and air; and among other plants a species of cactus had got a hold here, and, though dwarfed, seemed to prosper fairly well.

This hole, and the others also, had probably originated in a rift, which had become partly filled up with fallen débris. The bottom was a space 20 yards by 6, and the ground soft, decomposed lava.

My object in descending into it was to examine certain suspicious-looking cracks, which I thought might be fumaroles, but they were not so. This ancient crater had, no doubt, been dormant many centuries. Nowhere could be seen the slightest traces of recent activity, unless the hot springs near the base of the mount are so considered. Blocks and layers of lava of great age lay everywhere within the crater and on the slopes; but they were overgrown with briars, and discoloured with the lichens and stains of ages.

Getting into the hole had been difficult and dangerous work, getting out was yet more difficult; and, indeed, without the aid of a man above would have been impossible. Under my struggles to secure a foothold, masses of the lava broke loose, and fell to the bottom in a cloud of fragments, and by the time I reached the top I was pretty well tired out.

There were traces in all the holes of the occasional presence of water, doubtless collected from rains or melting snows. None of the peaks visible from this point are snow-capped at this time of year (the late fall); but as the total height above the lower valleys could not have been less than 12,000 feet, it is tolerably certain that snow falls in the winter months; and there were traces, too, of considerable torrents down the mountain sides, though we could not find the smallest rill or spring at which to quench our thirst. In my opinion, if the side of the crater had not given way, the hollow would have become a mountain lake of 500 or 600 feet in depth.

The sides of this and all other mountains hereabout were thickly clothed with pines, which covered every spot except the rugged seams which were evidently occasionally surging water-channels. Some of these channels were very deep—embryo cañons, in fact: well on the way to cutting a gorge right through the mountain, which it seemed they would eventually do.

In the valley on the plateau below the lava was weathered into wonderful forms, exceeding in eccentric configuration even those in North Oregon. It also formed great caves here, 80 or 90 feet in depth, very rugged and grotto-like, but not otherwise remarkable. In some cases the roofs of the caves had fallen in in patches, presenting a curious network of holes above, through which long brambles trailed down into the interior. The roots of the shrubs and plants evidently play an important part in breaking up and decomposing the lava fields; and where these have been reduced to powder or fine fragments, the addition of even a small quantity of water at once turns the ground into most fertile soil, which is speedily covered with a luxuriant growth of vegetation.

Arizona is far more profusely covered with vegetation of all sorts than New Mexico. Cacti of all the kinds found in the Southern United States attain their maximum size and luxuriance here, and the candlestick cactus forms forests on the plateau we have just been describing, many of the finest specimens of this curious plant being quite 50 feet high. Some of these plants are simply tall posts, without branch or leaf of any kind, but covered with rough spines and projections, and with fruit and flowers growing direct from the trunk. If one of these cacti is cut with an axe just above the root, several bucketsful of wholesome and refreshing fluid will flow from the wound: a circumstance the knowledge of which might have saved many a human life. Bisnaga cacti also do this.

The variety of trees here seems to be at least double the number found in the more easterly territory, although the two States are in precisely the same latitude. Amongst the trees certainly recognised were three oaks, cypress, cedar, pines of many descriptions (some of them 200 feet high), hornbeam, hickory, tamarack, hemlock, juniper, etc., etc., and the ever-recurring cotton-wood and aspen.

In other classes of plants, sage-brush, white-flowered cacti, scarlet-flowered cacti, yellow-flowered cacti—cacti of at least, we think, a hundred different species—and the agave here attain a luxuriance found nowhere else north of Mexico.

This agave is a wonderful plant, and one of the most useful found in the region; in fact, the agave is the palm of the American deserts. The dying wanderer who finds an agave finds life, and pity it is that hundreds have perished in these deserts with life within reach of their hands—*if only* they had possessed that "little knowledge," which, Mr Pope erroneously warbles out, is "a dangerous thing." Thousands have been lost for lack of a very little knowledge indeed.

The agave (properly, I believe, the American aloe) is a huge bunch of thick, fleshy leaves. From the midst of this bunch of leaves a tall stalk, 30 feet high at least, springs, which bears a number of clusters of small mustard-coloured flowers. The individual blossoms are of minute size; but the clusters are as big as a child's head, and the stalk may bear sixty or seventy such clusters. The tradition is that a hundred years elapse before the agave throws up this stalk and blossoms, and that having done so it dies. This is absurd nonsense, but it is certain that the American agaves flower at very irregular periods.

It is the fleshy leaves of the plant which are so valuable. They are full of sap, which rapidly distils when the leaf is cut, and from a single plant sufficient fluid can be obtained to quench the thirst of a whole party of men and horses. The leaves sliced furnish an excellent fodder for the latter and all kinds of cattle, which they not only readily take to, but are exceedingly fond of. From the juice of this agave, the celebrated pulcher, a kind of beer much used in Mexico and in the southern parts of the West, is brewed. It is highly intoxicating, but certainly less dangerous to nerve and brain than the bad whisky which is so much sought after by the ignorant cowboys, ranchmen, and loafers of this region.

The leaves of the agave also furnish a filamentous fibre from which the Indians spin excellent string, and altogether the plant is put to as many uses by the people of this land as the palm is by the natives of some African countries. It grows mostly, as do the cacti, on the plains and in the valleys, but is often found at a considerable height on the mountain slopes—several thousand feet, at least—occupying the very driest and most arid-looking spots. Indeed, although itself full of moisture, moist ground is fatal to its existence, as it is to the existence of all the species of cacti growing here. They are never found in the immediate neighbourhood of water.

Several species of animals feed on cacti and their fruit. On two occasions we have seen deer poking the smaller kinds to pieces with their horns, and feel justified, therefore, in thinking that this is a common habit of deer. The object of breaking up the plant is obviously to avoid the thorns, which otherwise would wound the mouth.

Insects of various kinds are exceedingly destructive to some of these cacti, even of the larger kind. They deposit their eggs in the substance of the plant, or in the fruit, where the larvæ seem to feed. I have broken up cacti which might be described as a mass of grubs, so numerous were the larvæ, which I suspect to be those of moths. At any rate, moths harbour in the blossoms of cacti in such numbers that I have examined hundreds of flowers without finding one which was unoccupied by one or more moths. These moths are of two or three different kinds, of medium or small size and dull colouring, except in one case where the insect is prettily marked with white.

Some dead trunks of the giant cactus were found to be occupied by myriads of ants, but I do not know if these creatures were responsible for the death of the plants. Wild bees and hornets also nest in the dead and hollow trunks, or rather in hollows which they appear to have excavated for themselves. And birds attack the fruit. A species of tit was often seen boring at cacti-fruit with great energy, and these little birds speedily wrench a cactus-pear to pieces, and may be seen greedily feasting on the crimson pulp.

All sorts of *arachnidæ* are very numerous in Arizona, including small scorpions. The stings of these latter are painful, but not more to be dreaded than the bites of several of the spiders. The poison of some of these latter is very virulent, a bite often disabling a hand or arm for several days; yet the most venomous of them is a comparatively small spider, the body not exceeding a small bean in size. There is also a spider with a body the size of a pea and legs 2 or 3 inches long, which is capable of inflicting a bite which will induce strong feverish symptoms, and greatly affect the system of even a strong man. The same may be recorded of the sting of the wasp, or hornet, of these regions, a creature which all the men dreaded, and which invariably made its appearance at meal times, especially if a pudding or anything of a sweet nature formed part of the food, thus conclusively proving that the insect has an acute sense of smell.

Snakes and lizards were found at an elevation of at least 2000 feet above the lowest valleys. They were not so abundant, however, on the plateau as in the valleys and ravines, and were seldom seen except in hollows and gullies. The celebrated poison-lizard (*Heloderma suspectum*) was the commonest species on the hot, arid plains; but at the time I had not the least knowledge of the existence of this creature, and, believing that all lizards were perfectly harmless, handled it without hesitation and with freedom. It is certain, from my experience, that the little reptile is not aggressive, nor anxious to secure its defence by a voluntary attack, and I strongly suspect that it was an act of cruelty on the part of one of the men which brought about the discovery of the animal's powers. At any rate he was bitten, and immediately flung the lizard to the ground, killing it.

From the first he complained of pain and throbbing in the hand and arm, but I did not think this arose from poison. In ten minutes the arm began to swell, and the pain to be very great. The wounds, several in number—for evidently more than one bite had been inflicted—were very small, mere pin-pricks, and but a single drop of blood had flowed from each. Wondering, then, why the effects of the bite had been so severe, I took up the dead lizard and examined its mouth. To my surprise, I saw that the incisor teeth, if I may so term the anterior fangs, were furrowed or grooved like those of some poisonous snakes, and a careful examination convinced me that this indeed was a poisonous lizard. The animal was at once put in spirits, and preserved as a great curiosity, to be duly exhibited by and by. When, however, I got back among the scientific gentlemen, I found that, if they did not know all about it, they knew enough to show that I had made no great discovery. Once again vanity was rebuked, and my hoped-for *Heloderma paulini* came down promptly to a case of simple *suspectum!*

To return to *Heloderma.* The bitten man became ill enough to alarm me, and I resorted to all the known remedies for snake-venom. The injured arm became hot and inflamed, and the throbbing was easily discerned by placing one's hand upon it. There was strong fever and an almost continuous desire to vomit, and at night the sleep was fitful, and disturbed by dreams. As the man complained of a feeling of chilliness, I gave him hot drinks freely, chiefly whisky and water, this spirit being a well-known remedy, if not an actual specific, for snake-venom. The result was a marked improvement in his condition in twenty-four hours, and he gradually got better, but a considerable time elapsed before all the symptoms entirely ceased.

Of course we thenceforth handled this lizard with extreme care, but it is not at all disposed to bite unless roughly handled. By nature it is slow and apathetic in movement and habit, loving to lie quietly among broken rocks and stones, where there are plenty of holes for it to retire to when disturbed. Notwithstanding that it is described as being a nocturnal creature, I saw it about at all hours of the day; nor do I believe, as I have seen asserted, that it loves moisture. Its habitat in Arizona is on the driest plains in the territory, and it does not, as the lizards of the *anolis* tribe do, seek mostly the shelter of gullies and ravines.

It is heavily built, with a round thick body, short stumpy limbs, and a short thick tail; the latter, at any rate, does not exceed the body in length. The colour is a dull black, with a remarkable mottled pattern in yellow upon it, and the reptile looks more like a salamander than an ordinary lizard. It is very slow in movement, and cannot escape by running, and when touched suddenly halts, raises its head as if in expectancy, and remains perfectly still. Thus I picked up many of them, and handled them without fear, as did several of the men, and five or six were kept in a box in the waggon. The average length of them is about 18 inches, so they are by far the largest lizards in Arizona.

They eat almost any kind of small animal of the insect or reptile tribes, and particularly small snakes. They are not large eaters, and do not require frequent feeding, and I could not induce them to accept scorpions, or the poison-spiders, for food. They would eat minute scraps of meat and beetles, but deprived the latter of their elytra before swallowing them.

Some mice which I put into the box with them were speedily killed, but no attempt was made to devour them. Other small mammals were also bitten, and though none immediately died, they all succumbed in the course of from one to nine or ten hours. I tried to save the lives of some of these little animals by using various remedies, but it was in vain that I did so. They all died.

The commonest snakes here are a small dusky-coloured one, and another mottled and marked with green and a brownish shade; I cannot identify either. Both are small, and it was the latter of these two species which I found in the mountains. Besides these, there are one or two others not often seen, and rattlesnakes, the latter being the diamond rattlesnake (*Crotalus adamanteus*), a handsomely-marked, but most loathsome-looking reptile, about 6 feet long. It is not much to be feared, as it glides rapidly away at the first approach of man or other dangerous enemy. These rattlesnakes seem to live upon very small prey, frogs or toads, rats, mice, lizards, and eggs seeming to be the chief objects of their search. To these, no doubt, are added birds, but they are probably mostly young birds found in the nests of ground-nesting species. Full-grown birds, I should think, are seldom captured. Lizards are mute, I think, never having heard any species of them utter a sound; but the frogs cry lustily on being pursued by a snake, uttering a sound which I have never heard them use at any other time.

Although Arizona is so well clothed with forest, we did not find as much game here as in some of the other Western States. What there was, was tame enough, to show that it had not been much persecuted, so the trappers are not responsible for its scarcity. All the varieties of big game found in the other States of the West are to be seen here, with the exception of the moose, which we did not meet with. Both the white-tailed and wipiti deer ascend the mountains to a greater height than we saw them do elsewhere. The first wipiti seen in this territory was observed on some rocks on the other side of a cañon not many miles north of the volcanic mount. It stood on a crag at the very summit of the rock, its whole form being clearly outlined against the sky—a truly splendid sight. Probably there were more behind out of sight, and after watching us with unusual boldness for this animal, it suddenly disappeared. Afterwards we saw small herds of this, the white-tailed deer, and the prongbuck; but none of these animals here form such large herds as we saw in Colorado and elsewhere.

The centre of the territory we found to be an almost unbroken pine-forest of a magnificent description; not such a pine-forest as one sees on the "barren lands" of the east, and in the north, but a forest broken by mighty rocks, lofty peaks, deep chasms, and valleys all covered with splendid trees 150 to 200 feet high, and growing so thickly that we often had great difficulty in finding our way among them. In the lower ground there were other trees besides pine, of species already enumerated.

Sometimes we passed close to rushing streams and roaring falls, which were hid at the bottom of deep gullies, or concealed amid the trees, so that we only obtained occasional glimpses of them. For eight days we found the forest so dense that we had to resort to a compass to guide our way; and even with this aid, we became greatly involved and uncertain of our position owing to the many returns and *détours* we were forced to make to avoid obstructions and impassable places. On the whole, the mountains seemed to be of less elevation than in many districts we had already passed through, but we had not seen a more rocky and broken country than this. Ultimately we were forced to follow a deep cañon southward, which brought us out on another plateau of desert type, where pines and oaks, cotton-wood and aspen again gave place to cacti and agaves.

About the time we debouched upon this plain a strange incident occurred, which is without a parallel in my experiences.

As we approached the plateau, the cañon gradually diminished to a mere gully before finally merging with the plain. We had arrived at a narrow gorge, the rocks enclosing which were at least 20 feet higher on one side than on the other, the depth of the ravine being perhaps 60 feet at this spot. Suddenly we heard the howling of a pack of wolves, accompanied by a rushing sound, and looking upwards, were just in time to see a white-tailed stag take the most appalling leap I ever witnessed. It jumped desperately from the higher side to the opposite rocks, a distance of at least 40 feet with a drop of 20, yet it cleared this extraordinary distance apparently uninjured and got away. Several of the wolves in their excitement attempted to follow, with disastrous results to two of them which fell into the gully. One was instantly killed, the other lay helpless with a broken back and other injuries, which caused him to cry piteously till he was put out of his misery. A third wolf fell on top of the waggon, where a number of pelts, packed there to economise space, broke his fall. He fell with such force that several articles were knocked off, but he was not hurt, and lost no time in leaping down and scampering off up the gully; and though I had a gun in my hand at the moment, I was so astonished at this extraordinary incident, and it all happened so quickly, that I let him get away without firing. This incident happened about the time of sunset, and just as I had called a halt for the night. The dead wolves were two fine specimens, with pelts in good condition, and uninjured by the fall.

Though, as I have said, this is the only experience of the kind I have had, yet on relating the incident to old trappers I heard that instances of pursued animals taking desperate and fatal leaps to escape beasts of prey are not uncommon; and there are instances of deer and bison rushing over terrible cliffs when hotly pressed by hunters. It is said that deer will take any chance rather than face a pursuing horde of wolves, and one trapper told me that he saw a cariboo (reindeer) in the north leap over some cliffs more than 100 feet high into a lake below, and after swimming a short distance suddenly die in the water, either from exhaustion, or because the sudden shock of meeting the water with such terrific force had internally injured it.

The forest we had just emerged from was one of the most silent we ever travelled through—that is, so far as the sounds of animal life were concerned. But before we quitted it, there were several days of high winds, which caused such a roaring amid the millions of branches, that we were compelled to shout to each other in order to be heard. The sound may well be compared both in degree and kind to that of the simultaneous passage of a score of express trains. It caused much alarm to the horses, and our work and anxiety were much increased by our exertions to encourage and keep them quiet. These winds caused a great increase of the resinous odour which pervades these forests; and pleasant and refreshing as the smell usually is, it was, under these conditions, sometimes almost overpowering. When the winds dropped, a misty rain set in, which lasted two days, making everything damp rather than wet, for the total quantity of moisture which fell must have been exceedingly small.

What amount of rain annually falls in this territory I do not know; but during the two or three months of summer and early fall which covered my experience of the country there were only three or four light showers and one storm, which consisted chiefly of wind and thunder, very little rain accompanying it. There were no traces of a considerable rainfall at any time of the year, pools and lakes being scarcely met with, and the rivers containing but little water, so that it is surprising that there is so much forest in the land. I conclude that there is a good snowfall in the mountains in winter, and on one occasion I witnessed a smart shower of rain in the mountains, while not a drop fell in the treeless plain over which we were travelling.

Days and weeks passed, and we did not meet a single human being, not even a wandering Indian, nor see any evidences of the present existence of man in this country. On several occasions, however, we saw traces of the former Spanish occupation, chiefly evidence of extensive mining-works. There were also the ruins of a fort or earthwork, which seemed to have dominated a mine. Some of these mines were open cuttings into the mass of rock, others were choked up with rubbish; near one lay the rotting mass of a drawing-up apparatus, which had resembled in shape the capstan of a ship.

There were also huts and houses, or rather traces of them; for time or vandalism had reduced these remains to heaps, which a careless eye might easily have passed over without discerning their real character. The most interesting of these remains consisted of excavated houses or dwelling-places in almost inaccessible cliffs, up to which we climbed with some difficulty, and to which, in former days, it would seem there could have been no access without the aid of ladders. These dwellings were not of uniform size or shape, though the majority of them were small square apartments neatly cut out of the rock. Others were more like big ovens with arched domes, and yet others mere rough excavations. The only article we found in any of them was a pair of worn-out hide overalls—indubitable evidence that some cowboys or ranchmen had previously been here, and perhaps used the excavations as temporary dwellings. They had also made a fire in one of the caves, and had apparently been digging for hidden treasure in the floors of several.

These cave-dwellings were probably the work of a former generation of Indians, and quite likely were intended as retreats from the oppression of the Spaniards. No such dwellings are constructed by the Indians of the present day, who live in huts or wigwams. The latter form of hut or tent is found in all parts of the West, but is often supplanted by dwellings constructed on the plan of those erected by the miners and ranchmen—that is to say, log-huts and rougher cabins. A favourite form is a sort of elongated tent, sloping on the two sides from a central ridge—popular, we suspect, because it is easy of construction.

Moving north-westward, we by-and-by came out again on the plateau near San Francisco Peak, the highest mountain in the territory. Near here we were surprised to see in the distance a small herd of what were at first taken to be bison. An examination through a telescope showed them to be cattle, about forty in number. No man in charge could be seen anywhere, though we could sweep the country for many miles;

we therefore concluded that the cattle were wild—that is, the descendants of escaped domestic animals. Acting on this belief, we shot a couple of them for the sake of the meat, and in the preliminary pursuit found them as hard to approach within range as the shyest of deer. Subsequently we learned that these were not the only wild cattle which had been seen in the region, as several small herds had been destroyed under the impression that the bulls entice away the tame cows.

Though there was a certain amount of grass on the plains where these cattle were seen, it is a dreary country; there being, from this point, a scarcely broken plain right up to the great cañon of the Rio Colorado. Before I proceed to describe it, however, I will say a few words on the natural history of the district.

The West cannot be subdivided into regions, from a naturalist's point of view, nor is it altogether a region in itself. Not one of the States contains an animal or bird which is peculiar to it, and only a few animals have a restricted habitat. A few, as the road-runner, do not extend beyond two or three States; but I am inclined to think that they may be found outside the limits of the United States. Take the road-runner, for instance: I have myself seen this bird in North Mexico, and it is found in Arizona; and the poisonous lizard is a Mexican reptile which extends its range into Southern New Mexico and Southern Arizona. It is not found in the northern parts of these two territories; at least, to guard myself from error, I can say that a diligent search failed to discover it, except in the south-west corner of New Mexico, and in Arizona beyond about the middle of the territory. In Mexico proper it is abundant, as I learned at a subsequent date; and there are two varieties of the lizard, said to be two distinct species, but the one merges into the other. As we proceed south it becomes larger, and the yellow of the skin gradually deepens to a bright orange.

With regard to other animals in the West, there is certainly some difference between the north and the south of the region, chiefly in the species of birds. Between the west, taken as a whole, and the eastern part of the continent, the difference is decidedly marked, though there are a considerable number of species common to the whole country. One species of deer, the black-tailed, has a restricted habitat in the West, being confined to the extreme Western States.

In the pine forests through which we have just passed there are two woodpeckers at least tolerably common. One of these I recognise as *Melanerpes formicivorus*, the bird which is said to have the curious habit of fixing acorns in holes bored in the trunks of trees, for the supposed purpose of laying up a store of food for winter use. Oaks are abundant enough in many parts of Arizona; but I not only did not observe this habit in the bird in question, but as a matter of fact it seemed to prefer the pine forest to the broad-leaved trees. Do woodpeckers eat acorns? and why lay up a store for winter use? Acorns which have lain on the ground all the winter in this region are still eatable, and, indeed, if just sprouting, are in the condition in which all animals which feed on them prefer them. I do not wish to cast unnecessary doubt on an interesting and extraordinary fact, if it is a fact; but I had thought that all American woodpeckers were purely insectivorous: and this is certain, that there is abundance of food for all animals in these Western States at all times of the year. If, therefore, the bird actually fixes the acorns which are figured in natural history books and shown in museums, it is clear to me that it is for some other reason than the purpose of subsequently consuming them. It might be worth while, having first put it beyond doubt that the bird is the author of this extraordinary piece of work, to ascertain if there is anything in the holes besides acorns. Perhaps the latter serve as corks to imprisoned insects, placed there to develop. This is more likely than that the woodpeckers eat the acorns.

The second woodpecker recognised is Lewis's woodpecker (*Asyndesmus torquatus*)—a curious bird, insomuch that it appears to be clothed with filaments, like those of the egret, rather than with feathers. This is one of the most familiar of all the American woodpeckers; and I have not unfrequently seen one, two, or even three pairs of them at work in the trees under which the waggon was drawn up for the night. They displayed no shyness, and permitted themselves to be watched from the distance of a few yards. They are very active birds, and have the habit of hanging head downwards like a tit, to examine the under sides of boughs. They always go in pairs, as all other American woodpeckers with which I am acquainted do, and several pairs are sometimes seen on the same or neighbouring trees. Like tits, jays, and some few other birds, they are passionately fond of animal fat, especially kidney-suet, and a piece exposed near their haunts will induce them to alight on the ground—a very rare thing in woodpeckers. Where the gnarled roots of pines are exposed on the sides of cañons and chasms, these birds often occupy a hole under them, and there lay their eggs without making a nest.

Another remarkable bird of the pine forests I described just now is a variety of the scarlet tanager.

I took this bird for *the* well-known scarlet tanager, not noticing any material difference between it and the well-known red-bird of the north and east. I have never been very willing to make "specimens" of the beautiful little creatures I have met with in my travels, hence one difficulty in getting birds identified, resulting in not a little annoyance sometimes from cock-sure scientists who were quite sure of the limits of this species and that. A few years after the most extensive and prolonged of my western journeys, I was asked to give "a lecture" in an eastern town, and, always anxious to please, I consented readily enough, and in the course of a few remarks made reference to this scarlet bird of the Arizona pine forests. Immediately a gentleman, who seemed to have the scientific name of every bird in America on the tip of his tongue, stood up, and said that it was impossible that I could have seen the scarlet tanager in Arizona, and, above all times, at the fall of the year. I submitted in all humility that I might be mistaken, though I thought not; but the trifling incident, as trifles often do with us all, made a lasting impression on my mind, and I made many enquiries, with the result that I think that the bird must be the one specifically called *Pyranga ludoviciana*, though, after examination of stuffed specimens, I am anything but sure it was not the common species.

However that may be, the bird in those forests was met with every now and then in small flocks of generally about twenty individuals, though on one occasion a tree was seen pretty well full of them — perhaps a hundred or more—which made me think that they were assembling for a migration. The object of attraction on the pine-trees seemed to be a kind of caterpillar or bot, numbers of which they knocked off or dropped, which is not surprising, considering I have seen pines swarming with these larvæ.

My attention was first attracted to these birds in the evening-time by hearing a soft-toned little song. Stepping quietly among the trees, I saw the songster perched on the very highest twig of a young pine, its little beak stretched heavenward, warbling in a soft way a most sweet-toned song; not remarkable for the number of its notes, but delightful to listen to in this lone land. Subsequently I found that towards evening the flocks scattered among the trees to pass the night, and one bird generally took post on the extreme top of the tree, and warbled for an hour or an hour and a half until the dusk was fairly set in. Sometimes as many as a dozen of these little songsters were piping at the same time within a short distance of each other. Their plumage was scarlet, with black wings and tail.

As I have previously said, animal life was not so abundant as I should have expected to find it in a forest country which seemed to have been disturbed by man so little as this. I was always on the look-out for fresh or strange creatures, one of the chief delights of the journey being the study of animal life, and therefore had the number of individuals been great, I could scarcely have failed to discover it. But though numbers were scant, variety of species did not seem to be so. I saw polecats, squirrels, porcupines, and most of the small rodents mentioned in other States; and though I did not actually see the animals, the footmarks of bears, pumas, and wild-cats (lynxes) were found here and there. Wolves have been mentioned, and coyotes were seen on the plains; and I found the skull and horns of a mountain sheep, the animal having probably fallen a victim to a beast of prey, and the other bones may have been carried away by wolves or coyotes.

Deer were in all the parks and grassed cañons, but in much smaller parties than I had generally seen in the other States. In the term "deer" I include the so-called antelope or prongbuck, which I believe to be a deer. Small as the herds were, often consisting of but two or three animals, and a great number of solitary animals were also met with, I could always find a buck when I wanted venison, and this was pretty frequent; for we were dependent in great measure on our rifles for subsistence, and a considerable number had to be killed, as the men would not eat what they considered the inferior parts of a deer.

I occasionally tried the rivers and streams for fish, but without success. Lakes, as in New Mexico, are conspicuous by their fewness in number — indeed, I might say by their absence; for the few ponds and tarns I found in the mountains were so small as scarcely to merit the name of lakes. Some of them are beautifully situated, and very pretty; but the largest I saw could not have exceeded 100 acres in area.

On the plains, what few ponds there are are saline. Most of them have not a drop of moisture in their beds at this time of the year, if they ever have, which seems doubtful. I take them to be permanently dried-up lakes. The total absence of vegetation near most of them seems to justify this opinion. Reeds, at least, are sure to grow where there is the least moisture during the winter season; but here the stones around the shallow depressions scarcely showed discolouration from the humblest lichens, while the ground was often an inch or two deep with a deposit of salt, which glittered in the sun and irradiated the prismatic colours.

It is difficult to give a description of the Colorado plain which shall convey a clear idea of its appearance. However, if a quantity of plaster of Paris is mixed rather loosely, placed in a large open vessel, as a tub for instance, and dried by exposure to the sun; as it desiccates cracks of various sizes will form on its surface. Let there be one large crack running irregularly across the tub, and several other large cracks on either side joining the main one at right angles. This will give a tolerably good idea of the Colorado plain, with the river and its chief tributaries. The lesser cracks will represent the crevices with which the plain is thickly seamed.

The general level of the plain seems to be quite flat, with here and there a butte, or isolated mass of rock, rising above the *basse-terre*. The appearance of the plain, as viewed from a distance, is almost as barren and uninteresting as the surface of the plaster-tub. A few scattered bushes, nowhere in sufficient numbers to form a thicket, is the only vegetable growth which can be perceived, though, on a nearer approach, we find that tufts of grass are growing on the plain, especially in the shelter of the gullies. Even in the cañons there is no tree-growth worth mention. The Colorado, in fact, in the Grand Cañon, may be described as a buried river: so deep down does it lie that the surrounding country does not reap the least benefit from its waters.

The whole interest of this part of the country centres in the river and its wonderful cañons. These are the deepest in the world, the most rugged, the most picturesque, and the most remarkably coloured. The Great Cañon is a sort of double cañon, or cañon within a cañon. The first is as much as 10 miles wide in places, though the width varies greatly in the 300-mile course, which is about the length of the Great Cañon, and its appendages, the Marble and Black Cañons.

I feel that I cannot improve on the descriptions of these cañons given in my first book, and I recommend that the account there given should be read simultaneously with the supplementary notes which I now give.

The second cañon is that of the actual course of the river, a deep seam, often considerably more than 6000 feet deep, rising so nearly perpendicularly from the river-bed that one can look straight down into the water. For fully 180 miles this cañon is unbroken, though the height varies, being sometimes not more than 1000 feet, while in another part it is nearly 7000. There are places where an ascent to the plain above can be made, but for miles and miles not even a goat could climb up. It is appalling to look up to the dizzy vertical heights; it is still more appalling to stand above and look down on the rugged pinnacles and jagged rocks below; yet the grandeur of the sight is such that its very horror has a charm, and the spectator feels that he cannot tear himself away, but must return again and again to let his eye dwell on the never completely surveyed details of the marvellous gully. Every view seems fresh, for the eye always finds some new beauty or weirdness in the millions of rock-forms, which are as varied and intricate as the finest lace pattern. Yet every point of the rock-masses seems to lie below the level of the plateau-plain above. The river has cut down thus deep into the ground, the edges of the cutting have been weathered into their present fantastic and beautiful shapes — that is the impression left on my mind, and it is probably the correct one. Not only is every kind of human architecture represented in these rock-forms, every kind of building or erection, as churches, cathedrals, and fortresses, but many of the serrated masses look like distant cities of the first class—and then the colour! "Vermilion Cliffs" is so far from being exaggerated nomenclature that it would scarcely convey a sufficiently clear idea of the brilliancy of the colour in many parts of the cañon lower down than the Vermilion Cliffs. In some spots there are streaks of bright scarlet, and between this and the dullest crimson every imaginable shade of red may be found, and the effect, when the clear rays of the setting sun (clouds are rare here in summer) shine full upon them, is that of crimson fire. Sunset is the time when the most remarkable and romantic effects are produced; if the cañon is not seen at sunset, the grandest, most awe-inspiring of all Nature's scenes is missed. The man who takes the pains to come here, even if a mere "doer" of sights, must have some little liking, if not love, for the beauties of the earth; and if he sees one sunset in the Grand Cañon, he will not be content, he will wish to see another, and the sight will make a lifelong impression on his mind. But if the Virgin Nature is indeed his patron saint, he will with difficulty tear himself from this, one of the most enchanting of her many enchanted haunts.

The river itself, like the Rio Grande, is a comparatively puny stream. The current is swift, strong, full of eddies and cataracts; but the water is not deep. The bed is often full of rocks, and the boat navigation exceedingly dangerous; nevertheless, canoes can run down long reaches of it, and have done so. I do not know that rapid and dangerous rises of its waters, similar to that described on the Rio Grande, ever take place. There are no such narrow and tortuous gorges here as on the Grande, and the rocks do not indicate any great rise, though the water certainly deepens in the spring of the year. It is not the river, but the terrific rocky gorge, that is the attraction on the Colorado. Only those who have actually experienced the sensation caused by looking up or down a practically *vertical* wall 1¼ mile high can realise the awe it strikes to the nerves of even the most daring of men.

Of course, it is only at certain spots that such enormous walls close in to the river, and in most, or indeed all, detailed accounts which I have read of this wonderful region, there seems to be some confusion of ideas on the part of the writers. The usual assertion is that the higher rocks stand back several miles from the river cañon proper, and so in truth they do, in general—even as much as 10 miles in places. But in other spots, or in one portion of the Grand Cañon in particular, they close in on the river, with the result that what I have said above is literally correct. The rocks may not be *absolutely* vertical, because, as a matter of fact, at the spot I have in mind, there are five distinct masses, superimposed one on the other, the topmost pinnacle being clearly visible to a person in the cañon below; and trusting to the eye, and certain comparative measurements, I say with confidence that the wall is here at least from 2000 to 2300 or 2400 yards high—about 1¼ mile.

At the bottom end of the Grand Cañon, at that part of it known as the Black Cañon, the height is not so great, but yet this is perhaps the gloomiest part of the gorge. The rocks here close in very close to the water, are to all appearance quite vertical for long stretches of the river, and are certainly not less than 500 yards high. The lower parts of the rocks are very dark here—black, in fact, merging into a dingy dirty colour, and light crimson at top. In places there are streaks and patches of scarlet, light red, and deep orange. Below, on what may be called the actual banks of the river, there is space for men to walk or camp, but they could not proceed far in this way. In many spots the waters wash the sheer rocks, so that not even a mouse could find foothold.

Two trappers are thought to have been the first men to navigate the waters of the Grand Cañon, the Indians certainly never having braved the dangers of its rushing current. It seems that a trapper named James White and a young relative or connection came into this region under the influence of the gold-fever, in the hope of making placer discoveries. They ran a canoe down from the upper Green River, stopping to examine the country on either hand, and safely arrived at a spot somewhere east of the Vermilion Cliffs, which are near the commencement of the cañon. Here the Indians got on their track and gave them trouble; and finding it impossible to return or escape the arrows of the bloodthirsty Navajos, they, in sheer desperation, and as the last chance of escape, threw themselves on the mercy of the fierce Colorado current, and rushed into the awful mystery of the mightiest gorge on earth.

These men must have been of the old race of giants, fellows with the indomitable will of gods, and the brave indifference of those to whom it is meat and drink to do or die. I would wager a greater stake than I dare name that it was the iron determination to outdo and disappoint the Indians, rather than the fear of death, which induced this brace of heroes to face the danger of the tremendous unknown. I know the kidney of the breed full well, and am only sorry that it is not in my power to give a full record of the skill and bravery that took a frail canoe through that terrible 300 miles, and baffled the Red wolves. A miracle was performed, for afterwards, when some members of the Geological Survey performed the same journey in a specially prepared watertight boat, the *Emma Dean*, they had more than one narrow escape of being dashed to pieces. So what must have been the skill and pluck which took a frail canoe through!

Rapids are of great frequency in many parts of the Colorado's course, and in other places the bed is much obstructed by rocks in midstream. Of the many curiously-shaped, isolated rocks on the sides of the cañon I have only space to mention a few. In most places throughout the 300 and odd miles occupied by the Echo, Marble, Grand, Black and Pyramid Cañons, which form one unbroken gorge, the rocks on either side are a mass of pinnacles, points, needles, and beetling cliffs, with forms and shapes so multitudinous and various that, as was hinted just now, the eye cannot take the wondrous view in as a whole; and the details are so confusing, that it is not possible to do more on paper than give a vague notion of them.

There are, however, a few stupendous isolated points which stand in marked relief to the general mass of peaks and spires. The "Pulpit Rock," for instance, near the entrance to the Echo Cañon, is a huge mass of the "Devil's Cheese-ring" type. It is balanced on a pedestal rock, and appears to be more than 60 feet high, and to weigh several thousand tons. A person can walk right round it under its overhanging mass on all sides. It really forms a summit of a peak or hill, from which the softer rocks seem to have weathered away on all sides. Most peculiar forms are often the result of this weathering. A case in point is the "Pump Rock," in which two sloping and projecting rocks give the form of a pump with nozzle and handle complete. The "Mandrake" is a similar formation: a cluster of forked arms projecting at the top. Both these rocks are about 20 feet high, and both give indications of rapid weathering away. The "Monument Rock" is an upright four-sided column of great height and size. Although it is supported on two sides by buttresses, it is practically square in shape, though the top is broken and projects on one side. I only had a distant view of it, as it was on the opposite side of the river, which is not here passable; but it seemed to be several hundred feet in height. Such formations are as plentiful as blackberries throughout nearly the whole 2000-mile course of the Colorado.

I know of no fordable places on the river, the strength of the current being such that man or horse would probably be instantly swept away; but in the adjoining territory of Utah, there are several established ferries, used principally by miners, for this part of the country is impracticable for herds: indeed it was not without difficulty that we got the waggon through, the number of crevices or cracks on some parts of the plateau being so great that we constructed a sort of portable bridge of logs and a few planks we had with us. This enabled us to take horses and waggon over crevices that did not exceed 6 feet in width, and thus save ourselves many weary miles of roundabout travel.

Although the sky was nearly always cloudless, mists were of almost nightly occurrence in the lower cañon: that is, the actual gorge of the river. These must have arisen from the water, as there was no rain, and the country was the most parched of any I ever saw in

North America, not even excepting the Deserts of Utah to be presently described. These mists could not rise above the height of the cañon walls, and had, therefore, no influence on the surrounding country. They were often dense enough to prevent one seeing a dozen yards ahead, and often did not disperse until the sun was vertical at midday, at which time only its rays could reach the bottom of the cañon, in the narrowest parts. Here the fog often hung persistently, but in a mobile state, rolling over and along in immense greyish-coloured clouds, sometimes rising to the top of the enclosing rocks, then sinking and filling the lower half of the chasm, while the sun was shining brilliantly on the pinnacles, organ-rocks, and fortresses above, producing an extraordinary effect, as if the rocks were hanging in the air. Often, too, rainbows were formed above this mist, reaching from side to side of the cañon, as many as five or six being sometimes visible at the same time. As we advanced on our journey the continual looming up from the mist of fresh rock-forms was an extraordinary sight; but we soon had to move inland, for there was no crossing the side-cañons which joined the Colorado: we cannot, in every case, call them tributaries, for fully half of them had no water in the beds at this time of the year.

Once or twice we descended into the channels of these dry cañons, and travelled up their course. By doing this we sometimes made good progress, though the experiment was a dangerous one; for if a heavy shower had suddenly come on (and the rainfall of the country is almost entirely made up of storm-showers) we must have been swept away. Getting into these cañons was easy work in comparison to getting out again. We have travelled 60 or 70 miles in a gorge without finding a slope that a waggon and horses could ascend. Indeed, in one cañon there were sheer walls 300 to 800 feet high on either hand, which could not have been ascended had life itself been at stake. Marks on the vertical rocks showed that there was sometimes 30 feet of water in this gully, and the great rocks and stones showed evident signs of sometimes being rolled about like huge marbles. Yet we were glad to take all risks and use this and similar channels as useful roads, for the plateau above was a labyrinth of dangerous cracks, of no great width in general—4 or 5 feet perhaps—but veritable death-traps to horses or unwary man. In general these crevices were 30 or 40 feet deep, but occasionally we came across some that were ten times that depth. And so we entered the territory of Utah—the land of the Mormon, and of one of the strangest religions ever invented by man.

CHAPTER X

UTAH

THE precise spot where we entered Utah cannot be indicated, for at the time the journey was made, I had no knowledge of the limits of States in this part of the country; it was all "New Mexico" to me, except in the immediate neighbourhood of the more important settlements, and I accepted local nomenclature without quibble. However, we crossed the border somewhere in the south-east corner, and must have taken a wide sweep into Colorado again, for we crossed the Grand River well up towards the head-waters, and finally made the passage of the Green River (as the upper Colorado is called) somewhere about the middle of the eastern side of Utah territory, after a search of several days before we could find a fordable spot. The place of crossing was in a formidable-looking cañon, but we contrived to find a way down on the one side and up on the other, not without an accident or two; indeed, the previous three weeks was the roughest time I ever experienced in any part of America, and there was not a man in the party who had not an injury, more or less serious, to show, nor one who had not experienced a bad fall. Four dislocations and two broken arms amongst my followers may serve to testify that we had seen some roughish country in those three weeks. My own escapes had been marvellous, but

I got off with some bad bruises and the loss of nearly a dozen teeth knocked out in rolling down the side of a gully. In crossing the Green Cañon, I had an even greater fall, horse and man going down a very ugly slope at least 60 feet, yet both getting on our pins again with very little real hurt. This is the more strange, as it was a comparatively slight accident of a similar nature which spoilt my life many years afterwards.

Needless to say, the rocks here were extremely rugged; and though I could perceive no particular difference in their formation to those in North Arizona, they seemed to be of an exceedingly slippery surface, both waggon and riding horses frequently going down, and half the animals broke their knees in this district in spite of every precaution taken to prevent such accidents.

Generally the mountainous region of the east and centre of the territory was exceedingly serrated, the slopes covered with pine and cedar forests, and naked peaks and rock-needles rising above the ridge of the range. The lower elevations were more or less clothed with broad-leaved trees of similar kinds to those noticed in the last territory, but the variety was not so great; and an odd tamarack and hickory or two seemed to indicate that we had approached the limit of those trees in this direction, nor did we see many oaks. But, taken as a whole, this territory can hold no comparison as a forest country with Arizona, though in all other respects it is a similar region. The open plains, which all seem to be plateaus, are similar to those of Arizona, and in the southern parts are well provided with many different species of cacti and agave, the *Cereus gigantea* covering large tracts.

Incidentally I shall mention several birds, mammals, and other animals as they were met with, but, generally, this seems to be a poor game country. Mile after mile of the plain country was traversed without our meeting anything worth a charge of powder and shot. Great spiders of the poisonous sort, centipedes several inches in length, and small scorpions were plentiful, and could always be seen scuttling away before us, and, to our disgust, were every morning shaken from our blankets. Besides these, ants and a kind of flea gave us no little trouble: the former inflicting wanton bites which were painful, and the latter preventing much-needed rest at night. Bot-flies tormented the horses here more than usual, and other flies offended us by crowding on any article of food which was left uncovered for a moment. But these troubles were met with in a greater or less degree in all the States, though not previously mentioned.

On the plains were a few hares, keeping mostly near the sparsely-wooded foot-hills, or in the gullies, where there was plenty of herbage; but on the more arid parts there was an annoying number of prairie-dogs, whose burrows were so numerous, and placed so closely together, that it was often impossible to avoid them; and those who have had the misfortune to be compelled to ride over a prairie-dog-infested country will know what an intolerable nuisance they proved.

There were wolves in the mountains, though, we think, not in great numbers, and coyotes were abundant on all the plains. These Central Western States are indeed, it would seem, the coyote paradise. At any rate, they are numerous in every suitable locality, which is any open plain or prairie. I never noticed this handsome (as I consider it) little animal, the wild dog of North America, in the mountains, which are the favourite haunt of the wolf; although the latter wandering animal will occasionally show itself on any kind of ground, even marshy land, in spite of its general dislike to wet localities.

I may mention that I have known the coyote to take to strange food on occasion, though I believe that the bulk of its food consists of small rodents (rats and mice) and ground-dwelling birds. I have seen them, however, eat frogs and small snakes, and on one occasion saw a coyote seize a rattlesnake as it issued from a hole. It at once gnawed the reptile's head off, being evidently aware of the dangerous character of the poison fangs, and then proceeded to feast on the writhing body.

Rattlesnakes are unpleasantly numerous on the Utah plains, and some of them are unusually large—nearly 7 feet long. I disturbed several when riding among the prairie-dog colonies, by breaking into the holes of the latter; they hurried forth from their underground lurking-places in angry mood, rearing up the fore part of the body in threatening attitude, slightly swaying the head to and fro as if uncertain whether to deliver an attack. To save the horses from a possible bite, I shot them down quickly, but these creatures quiver, and sometimes wriggle away after the head is completely shattered. The vital part of these, and most other snakes, seems to be in the tail. A sharp blow on that region effectually disables them and prevents pursuit, which they will sometimes attempt when they have been provoked; and as they can move very quickly, it is sometimes difficult for a man to escape, especially as a blow from a stick must be a heavy one if aimed at the head, for they will fly forward and bite when the skull is broken. A touch on the tail, however, at once paralyses the body; and even when the head is chopped off, a tap on the tail will cause the body to wriggle, showing the great sensitiveness of this organ. As to the venomousness of the rattlesnake, there can be no question that its bite is generally followed by death; but there are cases in my knowledge where persons have not only recovered from the bite, but on some occasions have not even experienced any pain or discomfort beyond the temporary smart of the wound.

We passed the winter months in Utah, but the weather was not such as to interfere with travel; and the amount of rain which fell during that season was so small as scarcely to be worth mention. Perhaps this was an exceptionally dry year; but judging from the appearance of the country I should think that rain is remarkable for its scarcity at all seasons and in all years. What little did fall invariably did so with more or less disturbance of the atmosphere; and as in Colorado, we had terrific thunderstorms accompanied by comparatively little rain; nor could this rain have had much effect on the arid soil, for a heavy shower was immediately sucked up, and an hour after the sun shone out again, the ground appeared as hard and arid as ever. In fact, I do not think that the moisture sank into the earth, but rather believe that it was at once evaporated into the air. The lightning was often truly terrible to look upon, and reminded me of Moses' account of one of the plagues of Egypt, for it literally ran along upon the ground, sometimes in sheets, sometimes in long streaks. That, at least, was the appearance of it; but though I made a careful examination of the ground I could not discern any traces of scorching or blasting. One discharge struck a pointed rock, and caused the fall of two or three hundredweight of stone.

Sand-storms were as frequent as ordinary thunder-tempests, and these were often accompanied by thunder and lightning. More than once I have witnessed sand-storms on the plains from the heights above, and it would seem that the clouds of dust do not rise higher than 400 or 500 feet. The sight is a grand one, the whirling, involuting clouds of dust assuming many different tints as they sink into shade or roll over in bright sunlight, for the sky is not usually obscured when storms of this description take place. On the contrary, the highest winds always come with the brightest skies.

These storms are not so dangerous as those of a similar character I read of as occurring in the Sahara and other great deserts of the old world: nevertheless they are dangerous, and that in more ways than one. They cause great terror to horses and cattle generally; and, apart from danger of accident on this account, there is some fear of being overwhelmed and suffocated. The risk depends on the character of the country where the traveller is overtaken by these tempests. If he is in the open, and happens to be on the reverse slope where the drifts usually collect, he runs very great danger of being buried alive, or at least of being suffocated by the fine particles. The horses seem instinctively to know of this danger, for they will rush madly to the nearest thicket if there be one handy, or bury their noses in the long grass, their limbs trembling the while. Men also are often affected by this trembling of the limbs, which does not arise from fear: it is rather a symptom of incipient suffocation. Breathing is always difficult, the dust being evidently so thick as to render inhalation an impossibility without inhaling great quantities of it. Yet, as I have written, the clouds of sand do not rise very high, for on the hills above the air is as free as possible from it. The western side of the territory seems to be most liable to sand-storms; and in that region, and in some parts of the centre, there are tracts of loose drift-sand, which are constantly shifting—a most unusual occurrence in other parts of North America. In the districts named I occasionally found bones and skulls half buried in the sand-dunes, or on the drift of the plains, mostly those of animals of the deer kind, and wolves or coyotes, which I supposed to be the remains of victims of these storms: but I could not always be sure that the bones were recent remains. The skeletons of several horses told more plainly of recent disaster.

In the southern part of Utah I found some singular remains of the ancient Indians, as I supposed, consisting of huts erected on cliffs, which had the appearance in places of having been artificially scarped. The huts were built of slabs of stone or rock, square or parallelogram in form, and about 10 feet in height, though some of them were two-storied. Below the cliffs were perforated with caves similar to those described as seen in Arizona. These caves could not be reached without the aid of a ladder, and were, therefore, not visited. There was a sort of verandah in front of some of them into which I could look from the cliffs above, and some of the houses had possessed flat roofs on which the inhabitants could walk or sleep. The whole place, which seemed to be the site of an ancient town, was in a very ruined condition. From time to time I met with other remains of a less important appearance, but which were sufficient to show that this land was formerly inhabited by a race of Indians, possessed of far more artistic ability than the Red Men of the East.

In the above village, and in some more isolated ruins, I found a few articles the use of which was not very obvious to me. They were mostly composed of metal (seemingly a compound metal), and did not appear to be of very finished workmanship. There were several knives and chisels: the rest looked to me much like a set of coppersmith's tools. No doubt I could have obtained more by digging, but I had not time for the labour this would have entailed, and such search as I did make was not very productive of results. The most interesting object found was a metal cup, or bowl, with figures embossed or carved in relief—the latter, if expert opinion is to be trusted. The figures appeared to me to represent monkeys, but they were, on the conclusion of the journey, stated by "competent authorities" to be the effigies of men and dogs or wolves. For this cup I was offered 200 dollars, and—well, permitted the trading instinct to get the better of me. A few years afterwards, while inspecting the contents of an East city museum, I found this identical cup exhibited, and labelled as having been *found* and presented by Mr ——, who was the gentleman who had *purchased* it. Well! many a fine fish has been caught with a silver hook: and I once knew a gentleman who always caught his fine fish with such a "spinning tackle."

A great deal of the description of Utah must be passed over. The general features of Utah, Colorado, New Mexico, Arizona, and Nevada are so similar that it is impossible to describe them in other than almost identical language. Arid plateaux for plains; mountain pine-forests, with bare serrated rocks towering above them, oaks, cotton-wood or poplar, aspen and hornbeam on the foot-hills, and sage-bush for the principal growth on the prairies, with "bunch-grass" and "seed-grass," are almost universal characteristics of these Western Central States. I therefore confine myself to details of the few peculiarities and special features which occur.

In Southern Utah the giant cacti cover extensive tracts, almost forming forests. In the spring of the year—that is from about the middle of March to the middle of April—I found several birds nesting on these cacti: the most interesting of which was the bird known to American ornithologists as the cactus-wren, *Campylorhyncus brunneicapillus*, which I have found almost right across the southern part of the United States; but it does not always build on a cactus-plant, for I have found the nest in bushes and young trees, where it is difficult to discover it; as it is always placed close to the trunk the side next to which is flat and woven close so as to lie against the bole quite evenly. It thus looks like a cluster of moss or lichen growth. On the cactus, however, it is easily seen, the more so as there are often four or five nests on the same plant; the nests also being large in proportion to the size of the bird. It is made of dried-grass, bents, and similar materials, with a lining of wool, hair, or feathers, or all three mixed. The entrance is a small tunnel-like tube, so that the eggs cannot be got at without destroying the nest, which is placed from 12 to 20 feet above the ground when built on a cactus; but when in a bush may not be elevated more than a foot or two. In the cactus they are well protected, as no climbing creature can brave the formidable thorns, which may be described as the rough hair of the cactus. I obtained a couple of the nests by standing on the roof of the waggon: a robbery I am almost ashamed to confess, remembering how flurried the poor little birds were. They flew round my head, clung to the cactus almost within reach of the hand, and kept up an incessant angry chirp while the crime was being perpetrated. The eggs are a pink colour, the hue being imparted to them by a sort of freckling or clouding—a very beautiful and singular egg. In one nest there were four, in the other seven eggs.

Another bird which builds in forked cacti is the local (so-called) desert sparrow, of which I can recall nothing except that it is clearly a warbler. It builds a somewhat rough but deep and snug nest, of grass and bents, lined with deer-hair, and lays sometimes, if not habitually, as many as six eggs, which are a cream colour with spots and small blotches of several hues, grey, brown, and purplish.

There are not many small birds in Utah. What there are, are of like species with those found in the neighbouring territories: and the same remark may be made with regard to the larger species. Some few of the small birds seem to make Utah the limit of their habitat, or of their migrations; I was not in the country long enough to decide which.

The common cow-bird (*Molothrus pecoris*), for instance, which, although not previously mentioned, is an old friend, often hovering about our camping-places in all the Central States, in flocks of considerable size. I have counted over a hundred running about among the horses' feet, and under and on the waggon, for it is one of the most familiar birds of the wilderness; and had I been so disposed I could often have knocked many down with a stick. They seem to have no fear of man, and are quite as bold and impudent as English sparrows. Here, in Utah, the flocks were small, composed of eight or nine to twenty individuals.

These birds are fond of perching on the backs of sheep and cattle in search of the larvæ of bot-flies, etc., which breed under the skin of domestic beasts; and they are accused of digging so deeply into the flesh of the infested animals as to injure them. I very much doubt the correctness of the charge; and certain it is that the suffering animals seem to desire the kindly services of the birds, and stand quietly during the operations of their little friends.

The cow-bird is also charged with similar practices to those of the cuckoo, viz. surreptitiously depositing its eggs in the nests of other birds. As this is stated on good authority it may, in some cases, be true. On the other hand, I can assert from personal investigation that the cow-bird builds a nest for itself, composed of roots of herbage, coarse bents, etc., lined with hair, and generally placed in a bush or stunted tree. The eggs, four or five in number, are thickly freckled all over with brownish-rust colour. I have never, myself, found them in the nests of other birds, but I may say that it is only in Western States that I have found nests of the cow-bird. There are other species of cow-birds in South America, and all that I am acquainted with build nests of their own, occasionally at least. The North American cow-bird is omnivorous, but there can be little doubt that the bulk of its food is grubs and caterpillars. It has a harsh, loud cry, which it utters both when flying and perched.

Eagles, both the bald-headed and the golden, were seen within the bounds of the territory, and several other species of *falconidæ* which were not identified. The only other important large bird seen was the sage hen, which is not very abundant in any part of the State visited by us. Notwithstanding the deserted character of the country, it was here so wild that the few obtained were shot with a small-bore rifle, as I could not approach near enough for the effective use of small-shot.

Probably, at the time of our journey, Utah was the most populous of the eleven Western States, California perhaps excepted; but, owing to the bulk of the population being concentrated in or about the Salt Lake district, it seemed to be one of the most thinly peopled. We did not even meet any Indians in the south or centre of the territory. As we approached Salt Lake, we found prosperous farms scattered about the country; and about the energy and industry of the Mormons there cannot be two opinions. Immorality has not, among them, had the effect of sapping the intelligence and prosperity of the people. There are no poor among them, and no idle. Idleness, indeed, is not permitted; and the improvements they have effected in their city, and settlements generally, is certainly marvellous. All the so-called desert lands in North America without doubt only require irrigation to convert them into fruitful lands; but the word "desert" is not a misnomer when applied to the wastes of Utah. Nowhere in the northern division of the great continent are there such absolutely dead tracts of land as here. Thousands of square miles may be described as being literally sown with salt; and if animal and vegetable life is present at all, it is present in infinitesimally small quantities.

The country round about the Great Salt Lake is desert land, but the city itself is situated in a valley about a dozen miles wide through which runs the sweet water Jordan River. Besides this river, and its few and small tributaries, the Mormons have conducted many small rills and brooks down from the mountains to the east of their settlements, and so have obtained a supply of excellent water. Natural timber there is none in the valley except the ever-recurring cotton-wood; but in the orchards and plantations of these industrious people, every valuable fruit-tree and ornamental shrub of East or West was seen flourishing. Many of the farms, oases of the desert, surrounded on all sides by barrenness and death, were spots of enchanting beauty, abounding, like the plains of Paradise, with every goodly tree bearing the delicious fruit of life.

Many of these farms were the property of people who were not Mormons, or were Mormons only in name; but it is not to be assumed that the homes of those who were, body and soul, followers of the prophet were one whit less prosperous or well-ordered than those of these people. One of the first homesteads we halted at was tenanted by a man who possessed eight wives or mistresses, and his place was as fine a picture of a thoroughly well-cultivated and prolific farm as any I ever saw in any land. The internal arrangements of the house, a large, comfortable, and well-furnished residence, were equal to those of a well-to-do New York or Boston merchant: and peace and happiness, with a never-waning cheerfulness, seemed to be the lot of the household.

Let there be no mistake. I am not defending or tolerating Mormonism. What I saw and heard and experienced in this strange colony placed it beyond doubt in my mind that the religion, institution—let it be called what it may—of Mormonism can never be accepted by men and women of education and refinement. That real love, the only love which is enduring, which is the outcome of mutual respect and admiration, can never exist among such people as the Mormons. The men — for the most part illiterate, unthinking fellows — were content with unlimited, uncontrolled sensual enjoyment; the women were kept quiet by indifference to the higher qualities of humanity, and by indulgence in that worldly prosperity which contents the average woman in all countries. Jealousy seemed to be almost unknown among both men and women; and the exchange of wives was quite a common occurrence, the women never, to my knowledge, raising an objection. All Mormon families seemed to get on well together, living in mutual peace and good-fellowship, but without real affection. In a word, content, it seemed to me, had here taken the place of love. Marriage was a business affair, and wives, to my knowledge, were bought and sold. I had reason to think, also, that some few of the women were discontented with their lot, but none evinced acute unhappiness. I sincerely hope my judgment is erroneous on one point. I never heard of atrocious crime in this settlement, but I formed a strong opinion that women who actively resented the treatment to which they were subjected, or who were thought likely to become a danger to the community by leaving it and revealing the true state of things in the settlement, were secretly got rid of. I have no direct or reliable evidence that this was the case—no evidence that could be placed before an authority, but I have strong personal conviction that it was so, and I did not hesitate to say so to more than one Mormon. No attempt was made to refute the charge; I was simply told, in a friendly spirit, to hold my tongue, if I did not wish to run into danger. What deeds of blood the Mormons were capable of perpetrating is shown by the frightful Mountain Meadow massacre in which several hundred men, women, and children, peaceful emigrants travelling into a new country, were butchered to the last soul, and brutally scalped, to make it appear that the Indians were the authors of the outrage. The Mormons were suspected, but there was no evidence against them at the time. A post, with a board, was erected on the spot where the slaughter took place, with this quotation from Scripture painted on it, "Vengeance is Mine, saith the Lord; I will repay," and, surely enough, just twenty years afterwards (in 1877), a fellow called Lee, a Mormon "bishop," and several other scoundrels, were convicted of being the leaders of the band which committed these terrible murders, and were taken out into the wilderness, placed under the board with the awful denunciation, and there shot to death. It must be pretty clear to most persons that men of the stamp of those who were capable of such an atrocious piece of work as the Mountain Meadow massacre, would not hesitate to put a troublesome woman out of the way, repeated troubles with the United States Central authority having fairly alarmed them for the safety and continuance of their vile community.

The hills which enclose the city on the east and west rise 3000 or 4000 feet above the level of the valley (they are double that height above the sea), and several peaks are nearly 12,000 feet above sea-level. There are many springs in the mountains, and some of them, in addition to being used to irrigate the fields, are conducted through the streets of the city, running along one side of the roads, which are about 40 yards wide. The streets are laid out at right angles, and each block is about 230 yards square. At the time of my visit the place resembled anything but a city as Europeans understand the word. Many of the blocks had scarcely a house in them, and others more resembled gardens than city blocks. The inhabitants were said to be about 10,000 in number, while the city was marked out for at least fifty times that population. No doubt there was wisdom and foresight in this, for it is probable that Salt Lake will always be one of the great cities of the West.

None of the buildings in Salt Lake City impressed me much. Some were timber erections, some built of stone; but the majority were constructed of bricks made of slime, mud, and sand, and dried in the sun. The latter is a material much used in all parts of the West for building purposes, insomuch that I do not remember having seen a brick-kiln throughout my journeys in the Eleven States. Mud bricks do not take long to dry, are durable, and hold well to the cement. In a country where the rainfall is slight and never heavy, they appear to be one of the best materials for building purposes. Native erections built of this brick have stood the test of many centuries, for the ruins are no criterion, any building of ordinary construction speedily falling into decay when abandoned and not periodically repaired.

The Temple, and the Official and Public buildings, are all in the central part of the city, and most of them are contained within one great enclosure. I need not dwell on these: every traveller who has visited Utah making these buildings a principal feature of his description of Salt Lake. The new Temple is to be an extraordinary building. It was not finished at this time, nor likely to be for many years. It was said that

6,000,000 dollars had already been expended on it, and that it would cost 10,000,000 in all: that is more than £2,000,000 sterling English money. To show for this they have a huge shed, which, viewed from a little distance, shows the outline of an enormous dish-cover. If there is any architectural style about it, it is the style of savages. Anything uglier it would be impossible to conceive. I attended worship in this mighty tabernacle, which is capable of accommodating the entire population of the place with room to spare. The service was reverently conducted, and it did not differ much, if at all, from that which is habitually used in many respectable dissenting houses of worship. Among the Mormons generally, in everyday talk, there are many references to the doctrines and beliefs of the Christian religion; the name of Jesus Christ is frequently quoted as an authority for this action or that belief; and the impression left on my mind was that the bulk of this people had persuaded themselves that they had acquired "liberty, through faith," to do pretty much what they liked. "The redeemed of the Lord cannot sin" is a phrase that I heard among them more than once; and when I asked one of them, who admitted that he had abandoned a wife and family in England, if he did not consider that he was living in adultery, the reply was: "Certainly not. But it would be adultery for you." He went even further than this, and declared that the marriage of outsiders was no marriage at all: that none but the Saints could marry in the sight of God, and that they had perfect liberty to do as they pleased—were "called to perfect liberty," was the phrase used. As I understood it, the moment a man joined them, he became "a Saint," with the privilege of immediately setting up a harem, or committing any other sin: for "a Saint cannot sin."

I much nonplussed this gentleman by pointing to the fact that a Saint had offered me one of his wives in exchange for a gun, and asking if there were no sin in so vile a suggestion. The man could give no answer.

Not to dwell further on so shocking and unsavoury a subject, I do not, and did not, hesitate to say that a resort to very drastic means are justifiable to wipe away this abominable blot on the fair fame of a great people. The Mormons may be an enterprising and industrious class; they may be, and are, prosperous above any other section of United States settlers, the Shakers of the East alone excepted, but they hold and practise doctrines which sink them to the level of wild beasts.

It is singular that these people who put no restraint at all (practically, at any rate) upon marriage, and the Shakers of New Lebanon, who abjure marriage altogether, are the most prosperous of any classes upon earth. There are no poor among them—*none whatever:* and they roll in wealth. So far as they are concerned, the trite saying that "vice brings its own punishment" is not worth the paper on which it is written. I gave some offence, on a former occasion, by my strictures on the Shakers, and shall probably give more now: but I will not permit any critic to intimidate me from a free expression of opinion—and, in this case, much more than opinion. I have been among these people, and had ample opportunities of judging them, and I say in the face of their oily cant that the Mormon and the Shaker are on a par, not only in worldly prosperity, but also in hypocrisy and vice—they represent two extremes, it is true—two extremes that are equally vicious, and either of which, if practised universally, would in less than a twelvemonth turn the world into a hell.

The sun may be said to be always shining at Salt

Lake. It is a rare phenomenon for the sky to be clouded. Shade is consequently necessary for comfort: and it is provided by planting trees, not only along the sides of the streets, but also in groves, and along the roads in the vicinity of the city. In fact, viewed from some points, the city appears to be buried in foliage. Growing naturally, there are few trees in the neighbourhood—I thought that these were not worth mentioning, and said so in the first account of my visit. But this seems to be a mistake, as there was, at first, pine on all the environing mountains. This has been destroyed with the usual wantonness of settlers in these western countries: and what remains is not of much value for timber purposes. Timber is brought by wain from considerable distances; but some plantations which I saw seemed to be intended to encourage the growth of useful trees.

In my eyes the Great Lake was by far the most interesting object in the district. It appears a sea to the view, the horizon line being level on the water, and there are one or two rocky islands at the south, or city, end of it. The Lake appeared to me to be nearly 70 miles long and about 30 to 40 broad; but some of the city people said that it was 90 miles long and more than 50 wide in the broadest place. This, I am convinced, is an exaggeration. I tried to form a just estimate of its area, and put it at 2000 square miles. Of seven accounts which I have taken the trouble to read, and each one of which, if authority is worth anything, ought to be correct, all differ, and that markedly. Very likely I am as erroneous as the rest, but I give my account for what it is worth; and lest the reader should wonder at the tone I adopt, I just remark that I have some captious criticism fresh in mind. I confess to a certain irritability at what I consider unfair comparison. My critics continually lose sight, probably through carelessness, of the fact that I was not an instrument-equipped, scientific observer, but simply a rough semi-trader and wanderer, with nothing but a tolerably acute eye and self-reliant mind to enable me to judge of heights and depths, men and things. I am obstinate in disposition, but not with the obstinacy of a fool; and it has been made clear to me that in some cases I am decidedly in error: and that on points which it is somewhat surprising I should have tripped at. I account for it by the fact that I have had to largely trust to my memory; and the points which I thought it was least likely I should forget are just those on which I made no notes. It is to be remembered that until some three or four years ago the thought of writing a book had not so much as swept across my brain, although many trifling papers from my pen have appeared in American publications. In the present work the greatest care has been taken to ensure accuracy; and, as stated in the Introduction, I have had valuable assistance from a friend who thoroughly knows the whole of the "Wild West." The accounts of authorities have been glanced through, principally with a view of checking distances, boundaries, heights, etc. On facts I have not permitted my careful judgment to be superseded, for I have not the least disinclination to cross swords with "authorities." Twice, at least, during this journey, if I had permitted authorities to warp my judgment, I should have got into great, and perhaps fatal, difficulties.

Now for the Great Salt Lake. It is the Dead Sea of America. It looks like a dead sea; and though it would be going too far to say that there is no life in it, on it, or about it, there is not as much on the Salt Lake as on the Dead Sea of Palestine, if the accounts I have read of that lake are correct.

The banks of the Salt Lake are absolutely barren of vegetation; at least, its immediate banks. They are so low that as one walks towards the shore, he wonders that the waves, which roll in like those of an ocean, do not rush inland. They come in so sluggishly as to resemble molten metal rather than water, and break abruptly with dull heaviness. Even in fierce storms (and I witnessed a terrific storm while here) the waves do not come much farther inshore than usual, though they rise fully 6 feet above the level. Their force is very great, and this lake, in spite of its shallowness, is an exceedingly dangerous one to navigate. The parallel ranges of mountains south of it seem to concentrate the winds, and a due south wind always makes a rough lake.

In singular contrast to the exceedingly low shores are the rocky islands, several of which rise to a height of many hundred feet. One or two of these islands can be landed on, and are of some extent; but a high rock which I attempted to scale seems to be inaccessible: at any rate, from the side where I landed. Many of the rock-faces come down sheer to the water.

The depth of the lake is exceedingly small for so vast a body of water. I found a few holes where it was 40 or 50 feet, but generally I could touch the bottom by pushing down an oar. The average depth did not seem to be greater than 8 or 9 feet; often it was less—5 or 6 feet, and in one spot, about 20 miles from the west shore, it was so shallow that by reaching down I could touch the bottom with the hand. The bed of the lake seems to be hard and rocky, with a thin layer of mud over it. Here and there I found bare rock; in other places, a stony or gravelly bed; and many of the rocks are covered with a growth of a vegetable nature—a kind of seaweed, or perhaps a fungoid growth. The water is intensely salt—brine, in fact, and I found that it had all the properties of preservation of a wet pickle. I thought the saline matter was common salt, and only learn from books that other minerals are contained in the solution. The people of Utah evaporate the water by placing it in shallow pans and exposing them to the sun or wind, and the residue cannot be distinguished from salt, and is sold and used as such. Whatever other mineral is contained in it does not seem to be of an injurious nature, for I used a large quantity of this salt without experiencing any ill effects, and considered it to be of excellent quality. The water is so thick that the bottom of the lake cannot be seen, even in the shallowest places. If a tumblerful is dipped up and allowed to stand, a dirty sediment settles at the bottom; and to avoid this, the water is permitted to stand some time before it is evaporated for the salt, which is thus obtained as clean and white as the manufactured article.

Regarding the size of the lake, it certainly varies, which may account for the discrepancies in the various accounts. It is gradually growing smaller. Marks on the shore seem to bear out the assertion of some of the people that the water sometimes rises and comes inland several miles. No accurate measurements were taken, but the shores are so low that it seems probable that a rise of a few inches would be sufficient to bring the tide in a good mile or more; a rise of a foot or two would certainly do so. Inhabitants whose status and intelligence seemed to warrant their word being relied on, asserted that a heavy storm in the mountains always resulted in a rapid rise in the lake, but never to such a height as to endanger property or improvements of the land.

In my excursions along the shores I nearly completed a circle round the lake, in addition to examining the greater part of the southern half in a boat; I also crossed several considerable streams and beds of streams. Two, the Jordan and the Bear Lake Rivers, are continuously pouring fresh water into the Great Lake, though in varying quantities, according to the season. Two others, the Weber and the Park Valley, are occasionally dry, or nearly so. On the north-west arm is the Raft River, a brook 30 miles long, which occasionally becomes a rushing torrent, bringing a quantity of sweet water from the Park Valley Mountains. More than twenty runnels were crossed on the east and north shores, but not one on the west, which borders one of the worst deserts in North America.

With the exception of the Jordan and Weber, I am not sure of the nomenclature of any of the above streams. I have given the *local names, which I learned on the spot*, and perhaps in the face of this assertion, I shall be spared the remark that I "do not seem to accept the proper names of modern geographers," and use "proper names which betray equal indifference to the usage of geographers and others." Forty years ago I could not, if my existence had depended upon it, have named a geographer or described his "usage," and I am certainly not now going to put myself out of my course to please a mere faddist. I am entitled to use the names I found in use on the spot, and that I have done. Modern scientists have altered the spelling and pronunciation of the names of half the Indian tribes, and have written histories and accounts of the habits and origins of the Red Men, which, I positively say, are "at variance with known fact."

There is nothing material to record of the Natural History of the Great Salt Lake. All I observed is given in a former work ("The Great Deserts and Forests of North America"[1]); but this may be added: that one or two of the crustaceans of the lake much resemble a "brine-flea," which I have more recently seen. Odd birds visit the shores of the lake, or fly over its waters; but their general scarcity is probably the result of a paucity of food in the neighbourhood. Generally there are vast flocks of ducks and other aquatic birds on all lakes, "soda" or "fresh," in the West, but here I only saw a few birds of this class about the mouths of the streams. An old notebook which I have recently looked up, gives a list of creatures of low organic structure which were found in the lake, or on the rocks near it, but the descriptions do not enable species to be fixed. There seems to be a stone-burrowing worm on the shores, though the animal was not actually seen; and also a mud- or sand-worm, in the bed of the lake. Some of these last, which were furnished with many legs similar to those of a centipede, I remember were put into a bottle of spirit; but they speedily dissolved away, leaving only a few fragments of skin. Small shells, also, were fished up from the shallows, but I cannot say that these were the remains of creatures actually living in the lake.

Many stories were told of creatures of large size having been seen in the lake, and some persons said that there were fish in it. I think that these assertions were those of silly or superstitious people—persons of a class found everywhere, who, having no real information to give where they see information is desired, try to make themselves of importance by inventing extraordinary stories. The only fish I found in the Great Lake were a few dead ones which had evidently been washed out of the fresh-water rivers by the floods of a storm.

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[1] In this work the river Weber is called the Wear. This must be an undetected printer's error.

There was a quantity of débris in the lake, brought thither, no doubt, by the same agency, consisting of pine-trunks, etc., a few of which seemed to have been in the water for an immense time, since they were practically petrified. Other vegetable matter was seen, some which had been in the water for a time and then cast up on the shore, covered with a coat of crystals affording a strange but beautiful sight. There were no ships on the lake, but many of the people possessed small boats, and some of the saints (one or two families, if I remember aright) had established themselves on the largest island.

At a few points only do the mountains approach the shores of the lake. The end of the western range abuts on the coast; and eastwards, beyond the mouth of the Jordan, one cluster of rocks, 3000 or 4000 feet high (above the valley), jut out to within 3 or 4 miles of the lake. Lesser heights approach it on the north, but as a rule the shores are so low that the travellers appear to be walking on a dead level with the water.

The mountains are remarkable for the weird sounds which emanate from the gullies with which they abound. These seem to arise from the wind soughing over the ragged rocks; but the superstitious Indians, and silly whites, attribute very different origins to the sounds.

In the case of the former people this is not remarkable, for I, myself, but for the volume, and prolonged character of some of the noises, should have mistaken them for the cries and moans of people in distress. These sounds, more or less, are to be heard in most mountainous regions: and a farmer of this district had noted that a certain gully, the sides of which were clothed with yellow pines, became silent when all the trees were cut down. This incident alone affords a clue to the origin of the noises.

In certain spots the echoes are very remarkable and amusing. The Echo Cañon of the Weber is quite celebrated in the Salt Lake district, though all narrow and deep cañons give forth these curious repetitions; and there are some in the eastern passes which repeat sounds with almost startling strength and prolongation. This natural phenomenon is another cause of perturbation to the fearful spirit of the Indian, and echo cañons and rocks are always given a wide berth to by him.

Near the Echo Rock, which is quite 3000 feet above the level of the lake, there is one of the best obtainable views of its waters, looking eastward. A sharp point of land, running down from the northward, looks like what sailors term a "spit," and this and a rocky island off the cape are visible; but looking due west between this island and the large island (now called Antelope Island, but I only remember it colloquially as Great Island) to the south, there is an unbroken expanse of waters for apparently an interminable distance. In a word, a more extensive sea-view could not be got by gazing across an ocean.

During our stay at Salt Lake there were several terrific thunder-storms, accompanied by heavier showers than any I had witnessed in the West. On one occasion, at least, the rain was almost tropical in the violence of its descent; but steady downpours, such as are necessary for luxuriant vegetation, are unknown in this region, hence the necessity of artificial irrigation.

The desert to the west of the Great Lake is a howling wilderness—one of the most desolate we passed across during the journey. There are two or three small isolated ranges to be crossed or passed round, of from 2000 to 4000 feet high, known as the Lake Side Mountains, probably because the terminus of the range runs down to the lake. Then follows the desert, pure and simple, a tract entirely without water, where the traveller and his unfortunate horses are fried alive during the day, and shiver with cold during the night. There is no shelter from the sun in this desert, and no rocks to hide behind at night; we were, therefore, glad to crowd into the waggon, with the horses picketed on the lee side, that we might all, man and beast, escape as much as possible the cutting blast of night.

The wind began to blow about an hour after sunset, coming from a north-west quarter, and gradually increased to a smart breeze which chilled the marrow. The drain of wet which happened to be left in the buckets froze, and I found that a thin sheet of ice would form on a pan of water if exposed to the air. This, with the heat as great, or greater, at mid-day, than I ever experienced in a summer in my native land! It was the tremendous range of temperature in the twenty-four hours which caused the suffering rather than the maximum of either heat or cold. The journey across Great Salt Lake Desert was one of our most trying experiences, though it only lasted five days.

As we knew beforehand that we should get no water within the circle of this desolation, as much as possible was carried with us in barrels slung under the waggon, or wherever it could be stowed. Small kegs were even slung across the horses; yet with all this precaution, man and horse alike had to be content with very little more than sufficient to sustain life. Thirst is a cruel experience in this elevated, dry plain, where the slightest exertion induces a desire for drink, and here there are no friendly agaves or cacti to refresh the weary and faint. The last of our small stock of wines and spirits (except *one* bottle, reserved for an extreme case) disappeared on this stage of the journey, and never were stimulants more needed.

The characteristics of this desert are few, but not perhaps easy to effectively describe. Permitting the eye to wander round, the traveller perceives an almost level plain; indeed, parts of it, if the eye may be trusted, are absolutely level. The ground appears to be largely composed of sand, and so in reality it is, but there are other materials mixed with it, decomposed lava or volcanic débris, it would seem, and salt. If a pinch of the dust be placed upon the tongue, it has just the effects of common table-salt. Clearly the whole region was formerly covered by the waters of the now much shrunken Great Salt Lake.

There is very little variation in the character of the ground. In our track we met with none of those huge buttes which are so common a feature in the plains of the West. We scarcely found a rock. Three or four times we found a mass of rugged rocks rising a few feet above the surrounding level: cropping up from it, would be a better description; and on and among these rocks was a scanty growth of bramble and sage-bush with a tiny crimson flower or two, modest and retiring in habit of growth as the violet. By what marvellous provision of the Almighty these few herbs sustained an existence in such a desert I could not conceive. In spite of the babble of the unbelieving scientists, here was a marvellous exemplification of the assurance that He is mighty to save, for nothing short of a Special Providence could maintain life here, even in the tiny weeds and tinier mice which inhabited these oases. The most persevering search on my part failed to find a spring or pool of any sort; and while the slow waggon was crawling over this waste, I rode many a weary mile right and left, in the hope of making a discovery of some sort. The place was a desolation of desolations in all respects. The only living things I remember to have seen were mice, red ants, a tiny beetle or two, and equally minute spiders, with small black sand-flies, the power of whose bite was out of all proportion to their size. Of plants and shrubs, from the sage-bush down to the weed an inch high, I doubt if we saw as many as two dozen kinds. In places there was a sort of mallow, a plant with a similar leaf, lying so close to the ground, with foliage of brown and red, that from the distance of a dozen or twenty yards it could not be seen.

Perhaps the most beautiful sights here were at sunrise and sunset, when the subdued light fell on the glistening salt on the horizon, or at a considerable distance, producing effects which were simply wonderful —another proof of what the Great Manitou can perform with materials that bear about them the very look and odour of death to the feeble wanderer. The prismatic colours, the wondrous shades and lines, dominated by the coppery fire of the sinking sun of day, were such as neither voice nor pen can convey an adequate notion of. Brilliant and varied as are the hues of tinsel and coloured fires in the theatrical display of a pantomime, these must sink into tawdry dulness when compared with the celestial reflections of a sunset on this plateau of death: for such it really is.

The Salt Lake Desert is a dreaded land. No man could pass it on foot, few care to pass it even when well equipped; and the deaths and disasters which have occurred on its withered plains are said to be innumerable. I cannot repeat any of the terrible stories we heard, on seemingly good authority, of the sufferings and deaths which have from time to time overtaken the wanderer in this dreadful place; but the description of a whirlwind which we experienced in mid-desert will suffice to paint the dangers of its passage as well as any other story.

Throughout the Utah stage of our journey we were troubled with frequent tempests, insomuch that I think it was an exceptionally stormy year. About the centre of the desert we were overtaken by a terrific whirlwind, which rent the covering of the waggon, composed of felt and two layers of strong canvas, and threatened to upset that vehicle, broad and heavy as it was. The sand rose in great clouds, often assuming the form of columns, and we had to put nose-bags on the horses, and tie handkerchiefs over our own mouths, as it was impossible to breathe the dust-laden air. The fine sand, full of saline particles, affected the eyes greatly, producing an irritation from the effects of which man and beast suffered for a week or ten days.

It was impossible to move while this storm lasted.

The horses had to be unyoked and tethered on the lee side of the waggon, while the men stood at their heads and did their utmost to keep them quiet. Several of them were blown over, and the fright of all was very great. None of us could stand against the wind, and when the full blast chanced to catch us we were lifted completely off our feet, and generally thrown down. The gale lasted about seven hours, which was a time of excessive exertion to us. After it lulled there were frequent angry gusts, driving clouds of dust before them; but there was no thunder with this tempest. Next day it became dull and cloudy with close, oppressive heat. A few drops of rain, the size of dollar-pieces, fell, and also a few large hailstones: but the whole quantity of moisture was not sufficient to dampen the ground, or our clothing. When the storm had subsided great heaps of sand, 40 feet high, were piled up where previously there had been level ground. Several times during the tempest we had to move from our position to avoid being buried alive; and twice it was only by the combined efforts of men and horses, exerted to the utmost, that we succeeded in dragging the waggon from the mass of loose sand which drifted around it. Singular as the fact undoubtedly is, the very position which one would naturally think to be the most dangerous, proved to be the safest, viz. on the lee side of the shifting dunes. In this position huge clouds of sand were carried bodily over our heads, but we noticed that the dunes constantly increased in size to the end of the storm.

On what principle these sand mounds collected we cannot state. Probably some slight inequality of the ground served as a nucleus. This is certain, that those dunes which were freshly formed continued to increase in size to the end of the storm. I was too much occupied in looking after the safety of person and property to take very careful observation; but this may be said, that it seemed to me that those dunes whose axes were at the beginning of the storm lying across the wind's course were all destroyed, and fresh ones formed parallel to its direction. Subsequent observation showed that nearly all the dunes were elongated banks lying nearly due north and south, the direction in which the recent cyclone had blown. Previously the majority of the dunes had certainly lain nearly east and west, though I had not taken particular notice of them, nor had I seen a great number during the first half of the distance across the desert. It seems safe to say that the position of the dunes changes with the wind; probably, also, even light breezes tend to diminish their size, for much of the sand is very light—mere dust, in fact, and rises with the least breath of air.

After the storm we saw the sand rushing along in streams low down on the horizon, the effect of distant winds; and on subsequent days it often rose in great columns similar to water-spouts, which moved over the plain at a seeming rate of 12 to 20 miles an hour. These columns always dissolved away in heavy clouds of dust. Years afterwards I saw a similar, but even fiercer, sand-storm in the Andes, which was markedly distinct from the Salt Desert cyclone, on account of the magnificent colours which were reflected from the whirling masses of sand. Here the only discernible tints were various shades of dirty brown and almost dead black.

When in the centre of the desert we saw high mountains to right and left of us, and also ahead, which were thought to be not more than 15 miles distant, but which proved to be double that distance. Moreover, they turned out to be not so lofty as they had seemed; probably our sight had been deceived by the almost dead level of the desert. Those in front were about 5000 feet above the plain, which we suppose would be nearly 8000 above the sea-level, the desert being an elevated plateau.

CHAPTER XI

NEVADA

THESE mountains are, as nearly as possible, on the boundary line between Utah and Nevada. They form a short range, or series of ranges, with steep slopes, and, in places, abrupt cliffs. They are, in fact, large buttes; and we found it necessary to take a long sweep in order to find a passage round them.

There was need now to press on, for but a single day's scanty supply of water remained in the barrels. For five days we had not seen the bed of a river or pool, wet or dry. The presence of the mountains gave us hope of finding a spring; but, though the men dispersed themselves on all sides and searched diligently, none was found.

The rocks were most dreary-looking. They appeared to be destitute of vegetation; but through a glass a few withered pines, and a little grass or other herbage, was discovered. We pressed on until it was quite dark, and a half-pint of cocoa was served out to each person with the very unpleasant assurance that he would have to do without drink to his breakfast the following morning, as it would be necessary to give the horses the last of the water. As it was, these poor animals were suffering greatly, not having had during the past week a third of the quantity they should have had. Anxiously we watched for the flight of birds, but none appeared in the sky. This, indeed, is one of the few spots where the rules I have laid down on a previous page for finding water are likely to be of no avail, for here indeed there is no water to attract birds or other animals.

With the first light of dawn we were up and on the move, for it was no time to be dawdling. The horses were so thirsty that they refused their corn (served out on special occasions when other fodder was scanty); and the men had no care for breakfast without coffee. A few took a piece of biscuit in their hands, and ate as they moved about; the majority preferred to resort to their pipes. Those for whom there were spare horses mounted and rode ahead in search of that commonly-despised element which we now knew, and knew with a vengeance, is the elixir of life.

Acting on the theory that horses, and animals generally, instinctively find water, I permitted my little mare to take her own way, and she went off at a round trot in a north-westerly direction. I must have ridden at least 60 miles that day, for I did not pick up the track of the waggon until late in the afternoon, after making a very large sweep across the country. During this ride I found one small brook, and two or three ponds, and also a hot-spring. In the first-named the water stank, and was so impregnated with alkaline matter as to be, practically, poison. Of the water in the hot-spring, which was at least swallowable, I drank, in the agony of thirst, perhaps the quarter of a pint: and I shall never forget the fact. For months afterwards the mere sight of a hot-spring made me shiver.

Returning to the waggon I found all the men back: not one had found water, and the sufferings of all, including the poor horses, were intense. We read of sailors living many days without water. Whatever men, sitting comparatively quiet in a boat, may endure, it is certain that active fellows travelling in this desert, and doubtless breathing in multitudes of saline particles, could not live longer than two or three days without water. Or perhaps the extreme dryness of the air has much to do with the speediness with which deprivation of drink affects the wanderer. However that may be, at the expiration of twenty-four hours our tongues began to swell and our lips to crack and bleed, and at the end of the second day one or two of our small party could not distinctly articulate a word; and we all rapidly sank into a similar alarming plight to that of the party of miners whom it will be remembered we met in South Wyoming.

Myself, and one other man who had incautiously tasted of the horrid soda-ponds which pollute this land, suffered horribly, and almost lost our reason under the terrible burning pain. Fortunately we had taken no great quantity of the horrid stuff; and after all the oil in the waggon had been divided among the party in a vain attempt to lessen their miseries, it occurred to me that I had heard of a certain expedient in such pressing emergencies as this of ours, and I at once took a pint of blood from each of the horses. Disgusting as the draught may seem, it was eagerly quaffed by each individual, and the effect was almost marvellous. The thirst was only partially quenched, but all were greatly reinvigorated, and their minds settled as much as their bodies, for all had been greatly distressed, and one man had repeatedly threatened to commit suicide. What was scarcely less important was the remarkable circumstance that the loss of the blood seemed to relieve the horses: they certainly benefited by it.

Fresh courage was taken by all, and it was proposed to press on during the night. This was found to be impracticable. There was no moon, and there were so many obstacles in the shape of loose blocks of rock, and fissures in the earth, etc., that we were compelled to wait for daylight.

The next day only two of the riding horses were capable of much exertion, while the draught animals could scarcely drag the waggon. All the men were more or less ill. Two of them again went on in search of water.

Twenty miles a day was considered a fair rate of progress for the waggon: this seldom meant more than fifteen in a direct line of route, and was often much less. It depended, of course, on the number of *détours* we were compelled to make to avoid impassable ground. It was evident, therefore, that water must be found at no great distance from our present locality, or we should have no alternative but to abandon the waggon, and ride on for our lives. My anxiety was very great, and I may repeat that this was one of the most trying adventures of all our American experiences; nor do I remember that my heart ever gave a more grateful thud of gratitude and joy than it did when at four o'clock in the afternoon the two men returned with the relieving news that there was a stream of sweet water not further than 9 miles off. They had brought in a couple of kegs with them, which gave almost immediate relief to the men; but the horses were so exhausted that we took them out of the waggon and made for the water at once. When we arrived within a thousand yards of it they evidently smelt it, for they broke into a canter and rushed straight into the stream. There was not more than 2 feet of water in the deepest part of it; and several of the poor animals having drank their fill lay down and rolled about in it.

I feared that horses and men would alike suffer from a surfeit, and as soon as possible I got them together and returned to the waggon to pass the night. For three days we remained camped near the stream to recover somewhat from our exhaustion, and should have remained longer if we could have found any game in the vicinity; but all large animals are even scarcer in Nevada than in the most arid parts of Utah. There we did occasionally meet with small herds of all the kinds of deer commonly met with in the West, but here in the north-east corner of Nevada there seemed to be absolutely nothing eatable except a few rabbits (hares) and a bird of the rail tribe which was seen once or twice about the stream.

This stream, I found, had its origin in some rocks at the back of the high range referred to just now, and its total course was only 11 or 12 miles. There was evidence that it was more extensive sometimes; and probably it dried up entirely at the end of the summer. However, the water was tolerably good now; appeared, indeed, delicious to us who were perishing for want of it. It was not improved, being shallow, by the treading of the horses; and having taken the precaution to fill all the barrels, we made a fresh start for the Coast Ranges. The whole of that day we found no water that was drinkable. On the second day we came to a long, narrow lake which was almost as briny as the Great Salt Lake. Several mineral-impregnated streams were also passed. These rivulets all ended in sinks, except one, which formed a pool half a mile across. At three o'clock in the afternoon we reached another small lake, the water of which was drinkable, and the find gave us quite as much pleasure as the discovery of a "placer" mine would have done.

As several of the party were unwell, we remained to rest on the shores of this lake for a week, those who were in health dispersing themselves about the country in search of game as we now began to stand in need of fresh meat. Only one herd of antelope (prongbuck) was found, and two animals only were shot, so we had to hurry on, lest food should fail before we reached a settlement where we could replenish our store.

I may pause here to remark that this was the second time of my crossing the territory now demarked as Nevada State; and on both occasions the journey was to some extent disastrous to me, the waggon being wrecked on the first occasion through the carelessness of a man whom I befriended in the wilderness. On that journey I crossed the territory 100 to 150 miles south of the present route, but found the country little better than on our present line. On that journey I need not dwell, a full account of it having been given in my first book. As on the present occasion, the landmark made for was the "city" of Carson, the State capital of the present day. I forget if it held that exalted position on the occasions I am referring to, but it was the only town I heard anything of in the whole region.

The country in our present position was a dreary waste covered with sage-bush, or "brush," as they usually call it in America, intermixed with bunch grass in sufficient quantities to enable us to gather fodder for the horses. Trees there were not any on the plain round the lake; but near the latter were a few low and very thick thorn-bushes, and a sort of bramble which crept along the ground, covering an acre here and there. All other plants were so inconspicuous in size, and so humble in habit, that they would inevitably escape the notice of any traveller not on the look-out for them. A few were in flower; but the flora here is not in any degree to be compared to that of States further west and the majority of those to the east.

As we journeyed on we were never out of sight of mountains several thousand feet in height, but without lofty peaks. These mountains are arranged in short chains, averaging 30 to 60 miles long, and running generally due north and south. A few ranges may be longer, but none that we passed ran more than a few degrees out of a north and south trend; and as a rule the chains are almost perfectly parallel to each other, with tolerably wide valleys (say about 12 miles) between them. These valleys, generally, were more or less covered with the usual nutritious grasses, on which we depended for the maintenance of the horses; but some of them were strewn over with rough stones in an extraordinary way, looking as if the country had been recently macadamised on a gigantic scale. The passage of these latter valleys was an experience not likely to be forgotten by the men and horses who performed it. Further south, on a former occasion, I saw ground of this description, in which the stones were piled in heaps and ridges, in such a way that it was difficult to believe that the arrangement was not the result of human agency: yet I am assured that these stones are lying as they were deposited by Nature, probably by the action of water. I think it quite probable that some of these valleys were, in a former age, the beds of lakes. If I accept the ever-recurring cotton-wood, and an odd aspen or two where there are streams, there are no trees in the valleys, and the mountains are the barest of forest growth of any that I have seen in the

West; in fact, in the centre of the territory, there is no forest on either of the two routes by which I crossed it.

Nor on the northern route is there any plain; the broadest valley not exceeding 25 miles across, if it is so much. On the southern route there is a frightful desert, similar in many respects to that which I have just described the crossing of.

Such trees as there are in the territory are of the same species as those described as growing in the neighbouring States: several kinds of oaks, cypress, cedar, and various pines, of which the yellow pine is the commonest. These do not grow in forests, scarcely even in woods; at least, until the extreme west of the territory is reached, where the mountains, blending into the Sierra Nevada, suddenly open on a new region: a region of giant timber and extensive forests which I do not consider to be in any way connected with the territory under consideration, though its outskirts are included in the political division.

In the centre of the territory the trees grow in scattered fashion, or in small groups and clusters, not on the tops of the mountains, but some distance up the slopes. The mountains are rugged and jagged, and serrated as much as any portion of the Rockies, and afford the most picturesque scenery in the region; but the want of great elevation detracts from the majesty of the needles, organ-rocks, and abrupt cliffs. Few, if any, of the ranges rise more than 5000 feet above the level of the valleys, and in general their height may be put at 3000 feet. This, be it remembered, is their apparent height to the eye. As before mentioned, I had no means of taking accurate measurements.

It should also be mentioned that all the trees enumerated above are of very inferior growth as regards size and height. Nowhere does timber seem to have been felled in the interior of the territory, it not being considered worth the trouble and expense of transport; and the timber used in the settled parts of the State is mostly brought from the Sierra Nevada, the fine forests of which were being wastefully used as early as the time of our first visit to Carson.

At the time of my second journey there were said to be only 35,000 persons in the territory of Nevada. Of this number about 2000 were Chinese; and it would perhaps scarcely be going too far to say that three-fourths, or more, of the entire population were as vile blackguards as any on earth; and every den of infamy in the wide world was represented here: that is, in Carson and its neighbourhood, where nearly the entire population was located, though the city itself was reported not to contain more than 6000 inhabitants. Carson, however, scarcely had a fixed population. Men were coming and going incessantly: even the tradesmen (who, by-the-by, made the biggest piles) seldom stayed long. They fleeced the miners and fled, lest they should be kept prisoners to the spot (not any uncommon occurrence in the early days of most of the western mining States), or meet a worse fate: for Carson was a place where a stab or a revolver shot was a current *joke*—a thing to be boasted of and laughed at.

There were no Indians in the territory of Nevada, a few wanderers excepted, but every nation of the earth seemed to be represented, in great or small numbers. Born American citizens were in a great minority, and the few there were, were certainly the most respectable and orderly persons in the country.

Practically Nevada, like several other of the Western States, was an uninhabited country, for the people were concentrated at certain centres. A good judgment of what 35,000 or 100,000 people in a country twice the size of England (all the Western States are nearly, or quite, that) means may be found by imagining the population of our country to be 40,000 only, instead of 40,000,000, as it nearly is. Then place 10,000 at London, another 10,000 in the Welsh mining district, 10,000 about Newcastle, and so on, and it will be seen that a traveller might ride hundreds of miles, from any one spot upon the map, and not see a human being. It is to be remembered, also, that there were not, at this period, towns or villages scattered over the West to the extent they now are. Towns were only to be found at the few centres of the mining industry, etc., referred to above.

In crossing the territory from east to west, we passed over or turned no fewer than ten of the parallel ranges described, our track, including *détours*, being about 500 miles long. During nearly the whole of this journey we were distressed for want of water, half the streams being saline or alkaline. It was absolutely necessary to carry water from camp to camp; and even with this precaution we were almost constantly on short allowance, it being found impossible to further curtail the quantity given to the horses if they were to be kept in an efficient condition. The only places where we obtained a sufficient quantity were at rivers which I believe, from the study of a map, to be Pine Creek and Reese River. We must have crossed the two streams so named in modern maps; but the miserable map which I had with me, and which was utterly unreliable, showed at least half a dozen streams of considerable size which were found not to exist; and I say, once for all, that thirty or forty years since I never succeeded in obtaining a map of any part of the wilds of North America (including Canada) that was worth the paper it was printed on.

The country passed through in Nevada everywhere had a desolate appearance. The very trees looked like outcasts of their kind: thin, wizened, and under-sized, and arranged in scanty groves, or scattered here and there in ones, twos, and threes. The colour of the rocks and sand was generally reddish, yellow, white, or grey, showing under the fierce blaze of the sun, with an unpleasant glare to the eye.

In the valleys there were extensive patches of sage-bush; and from this we started some sage hens and hares, several of which were usually shot during each day. Both the hens and the hares had an unpleasant bitterish taste, the result of feeding on the sage-bush sprouts, as supposed. It is often asserted that the former generally have this peculiar flavour; but Nevada territory was the only region where I noticed it, and I am of opinion that the sage hens do not feed much on this plant where other food is abundant.

Coyotes are abundant in Nevada; a polecat was seen once, and on the Reese River a few minks. One night a small animal was seen prowling near the camp, and on being shot proved to be a badger. These animals are said to be of the principal kinds found in the territory; but with the exception of the coyotes, we saw no more of them than is here mentioned. We more frequently found the footmarks of bears, but none were seen. Once we crossed the track of a puma, but this animal is certainly scarce in the territory, as is the wolf, although packs of the latter animal occasionally cross the country.

Near the centre of the State we saw two small herds of antelope, and the hunters of the party succeeded in shooting two or three head. A herd of deer, believed to be of the white-tailed variety, was also seen; but though it was stalked for nearly 20 miles none of them were obtained. Grasses and shrubs are too scanty here to offer much attraction to the deer kind: but I have it on the authority of reliable trappers that antelope sometimes appear in the territory in herds numbering several hundreds each.

Among birds the duck kind appeared to be the best represented: but care must be taken not to place too much importance on the phrase "best represented," for they were only seen in scanty numbers; and there being no great cover on the banks of the streams, they could not be approached closely enough to be shot, or to ascertain with certainty the species to which they belonged.

No other birds of importance were met with in the east or centre; but about 100 miles from Carson we found a few flocks of a small brown, or dark-coloured, pigeon with a ground habitat. Species not ascertained.

On our northern route we met with no species of cactus or agave; but in the south of the territory, as in Southern New Mexico, cacti are present in considerable numbers of both species and individuals. No tree bearing nut or fruit was found; and if there is a State in North America where an active, experienced woodsman might perish of hunger or thirst, that State is Nevada. It is certain that if we had not carried provisions with us we should not have been able to cross the territory.

There is grass in sufficient quantity, if the men help by cutting and gathering it, to support a small troop of horses; but I did not see a sufficiency anywhere to constitute an agricultural country, the reason probably that the cowboys have not invaded this region with their herds. For days together the dreariness of the land was unrelieved by the colour of flowers: then perhaps a limited tract would be whitened by a multitude of tiny white blossoms resembling those of chick-weed, or yellowed by clustering blossoms which seemed to us to be a large kind of buttercup. It was only in favoured spots, and at comparatively long intervals that we met with flowers in sufficient numbers to blush the land with delicate hues.

Insect life is perhaps better represented than any other kind. The great poison-spider runs about with swaggering gait, not usually very fast, but capable of rushing over the ground faster than a man can run, and never unwilling, if interfered with, to be aggressive. More to be dreaded, on account of its sneaking habits, is a centipede, often several inches in length, and capable of inflicting a most virulent bite. This wretched creature was often found in the folds of our clothing, bedding, etc., and was a thorough nuisance, as it got into the cracks of the waggon, among the goods, etc., from which lurking-places it issued forth during the night and sought our blankets. Two of the men were bitten, and one, in consequence, had a festering and useless hand, which did not heal for six weeks.

Beetles, small but beautiful on account of their bright, shining elytra of brilliant green, red, and coppery hue, were seen running quickly over the sands, and others of larger size were turned out of their holes in the ground. Ants also were here in great numbers, and were also no little nuisance, as they invaded clothing and everything else they could get at, and their tiny bites resembled the pricking of red-hot needles, and were troublesome on account of their number, as I have previously several times remarked.

In a small thicket, between some broken rocks, I found the nest of a kind of wild-bee, which was about the size of a child's head, and composed of minute pieces of grass stem and leaf. The nest was placed close against the stem of a bush, near the root, and the bees entered it from beneath by means of an orifice which I could not see, and I hesitated to be too inquisitive lest I should disturb the bees—or they should disturb me. I had a lively recollection of getting into a sort of chancery once in Michigan through interfering with the domestic arrangements of a family of wild-bees. The pertinacity with which these remarkable little insects resented the intrusion, and punished it, was an incontroveritible proof of their high intelligence. It is singular that it was only at, and about, the nest in question that I remember to have seen bees in Nevada.

On the line of the northern journey we passed but very few lakes or ponds. Many of the saline runnels ended in a marshy pond of a few acres in extent, which was sometimes a series of pools interspersed with partially dry patches, covered with a glittering saline incrustation. Some of the rivulets (they are scarcely more than brooks) are a chain of pools, similar, I should think, to those rivers we read about as occurring in Australia, only that here the water is undrinkable. It is only those streams which originate in a rock spring, and are perennial, which are good and sweet.

Often we crossed the beds of dry lakes, all of them of small size and well marked, but doubtless, in remote times, included in a larger lacustrine area. I met, every now and then, with manifest traces of this, and I am disposed to think that formerly the whole area of the territory, from the Sierra Nevada to the mountains east of Salt Lake, was a vast sheet of water, above which the isolated ranges of mountains, which now are a characteristic of the State, rose as islands. It would seem probable that this water may have drained off through the great cañon rivers, Snake and Colorado, and their tributaries.

Rushes and reeds are not prevalent along the banks of the rivers, or in the beds of the ponds, wet or dry. Sometimes there is a peculiar kind of grass, coarse and hard-stemmed, about the sinks, and in this I found a few nests of a small warbler, which was often seen in the centre of the territory. In one or two there were young birds, in the remainder these had flown. This warbler seems to be found in all parts of the country, as well as in Utah and New Mexico, and it is one of the few small birds which seem to be generally distributed in the present State.

I had no means of fixing our route by even popular nomenclature, for we had nearly crossed the territory before we saw a human being of any description; nor did we meet with any traces of the works of man such as those described under headings of New Mexico and Utah. If the Spaniards ever established themselves in Nevada they have left no remains on the routes across the region which were taken by us, nor are there any old Indian remains. Nevada is the desert state, *par excellence*, of the Union. The very wild beasts have given a wide berth to the greater part of it.

When we reached the western side, however, we one afternoon saw a straight column of smoke rising in the clear, still air at the far end of a long narrow valley we were travelling down, and that night we joined camp with a party of prospecting miners. From them we learned that the valley was called Silver Valley, and its western boundary Silver Mountains, and the next day we entered on another desert tract, waterless and desolate as the Great Salt Desert. Yet another two days and we passed close to a large sheet of water, which I now know must have been Carson Lake; but we did not stop there, as one of our advanced scouts reported he had found a convenient camping-place on a good stream 12 miles ahead. It was nearly dark when we reached this spot. Two more long days' journeys, and we arrived at Carson.

We did not enter the city, but took up a camp about 3 miles south of it, having no desire for too intimate a neighbourship with the rabble who formed the population. If I remember right, I described Carson, on the occasion of my first visit there, as a hell on earth, and it still deserved that description. No writer has ever described the shameless horror of Carson, no writer ever will. It was past description, and an attempt to paint its abominable scenes would disgust all persons, without exception, who are likely to take the trouble of reading a work of this description. The vice and shamelessness of the mining stations of the West has passed into a proverb, but Carson out-Heroded them all.

The whole district round the city is one great mining centre, and it was said that some of the deepest and most extensive mines in the Northern Continent were in this neighbourhood. Nearly the whole population of the territory was settled in the district, but in Carson itself there was a shifting population of some 4000 or 5000 persons with only about 2000 permanent residents; indeed it is doubtful if more than a very few persons resided here longer than three or four years at most. In about that time most of them had made a pile and "slung their hook." As to the miners, it was said that two years was a long life for an individual of that profession. In that space of time those who were not shot or stabbed had poisoned themselves with the infernal stuff called liquor in this place. I brought away, from curiosity, a bottle of Carson "whisky," which was afterwards proved to be as deadly a poison to animals as laudanum. What it really was puzzled more than one "expert in the trade," but there certainly was not a single drop of genuine whisky in a pint of it; and a medical man declared that it could only be by long practice that men could take two or three glasses of it without fatal results. "Why supply the men with such dangerous stuff, when a cheaper drink could be sold which would serve the same purpose?" is a question which has been put to us.

Because the Western miner will not be satisfied with a drink which does not speedily make him tipsy. He is used to drinking liquid-fire, and nothing less noxious will satisfy him. His object, when on the spree, is to get drunk, and that as speedily and as desperately as possible. One of this class of men once came begging of me, saying that he was "dying for a drink," but was dollarless. I gave him a tumblerful of good old whisky, which he drank off at a draught as an ordinary man would ale. As he put down the empty glass he exclaimed, "D——n it, Paul! That was three parts water. You're a sly fox."

He finished the bottle, and it had no more effect on him than a pint of Bass would on me. From what he was reported to have said, he was fully persuaded that I watered my whisky. There was a fat graveyard at Carson, and doubtless of the young greenhorns who came hither to try their luck, and could not resist the temptation to pose as old hands, fully twenty per cent. were under the turf by the end of their first three months' experience. Sick men had small chances of recovery if they possessed any means. Poisoned by the drinking-saloon keeper, who was always a bloated human spider, the miserable victim was taken in hand to be "nursed" by one or more of the horrible sirens who kept dens here, and his fate then was as sure as if he were in the hands of the hangman. Every time he opened his fiery mouth to yell for drink, a dose of his own "particular" was poured down his throat. If he lasted a week under such treatment he was considered to be unusually tough, and two drinks were given in place of one.

Carson, now the State capital, may be described as being a sort of receiving town. Fresh arrivals made for it, and halted until they had made their arrangements to move to some selected spot. It was also a depôt and store town, where the miners came for necessaries, or to waste their earnings. As the mining area extended other places sprung into prominence, and robbed Carson of a great deal of its importance, and its actual population has fluctuated very much. I understand that of late years it has steadily decreased, and is now (1905) only about 2000. Of course, Carson is now a very different place to what it was in the 'sixties and 'seventies, when I had knowledge of it. Judge Lynch and other judges have at length contrived to purify this Western cess-pit of bygone days.

In singular contrast to its moral ugliness are the beautiful surroundings of Carson. It is situated on the eastern slope of the Sierra Nevada only a few miles from the territory (or State, as it is now) boundary, at a height, according to maps, of nearly 5000 feet—I presume above sea-level, as it certainly does not appear to be anything like that elevation above the surrounding country to the east. Much of the timber near the city has been felled, but there were at this time many woods of fine pine-trees in the neighbourhood, for about here is the fringe of the Sierra Nevada giant tree region. A very short distance away are to be found trees 200 to 250 feet high. Probably most of the big trees have long since disappeared, for there was evidence that the people of Carson were as careless of the future as those of every other part of the West. "First come, first served" was the motto everywhere. The State "Timber Reserves" may protect the trees to a certain extent, in certain districts, but even in these the finest trees go first; and the system of cutting is such as will inevitably tend to exterminate big timber.

A reviewer asks "When was it true that tree-felling was mostly performed with hand-saws?" He appears to be under some misapprehension. This passage, quoted from my last work, does not refer to Canada, but here, to the West. The "mostly" is an error: the "hand-saws" are, I believe, technically termed "cross-saws"; but this does not seem error enough to deserve much cavilling at. The fact remains that about Carson, in many spots in the Sierra Nevada, the Coast Range, and in Vancouver, a *great proportion* of the timber was cut down with cross-saws, two men being required to use each saw. I make that statement as the result of personal observation. Furthermore, I never saw anything but a cross-saw used by the shingle-cutters of the Florida swamps. In this latter trade the axe is not used until the tree is down, and then only to strip the bark.

About 8 miles west of Carson, and seemingly about 2000 feet above it, is Lake Tahoe, celebrated greatly in both California and Nevada for its grand scenery and remarkably pure water. It is situated on the very summit of the Sierra, and is an unbroken sheet of water of, according to my calculation, nearly 20 miles by 12, and probably occupies the cavity of an extinct crater. It is of very great depth; I made no measurement myself, but had it on good authority that the average depth exceeds 1000 feet, and that there are spots in its bed where double that length of line has been run out of a boat without finding the bottom. The water is the purest found in any of the neighbouring States, being as clear as the finest spring water.

The lake itself is one expanse of the clearest blue tint, and the forest-clad surrounding country give its banks a picturesque, if not romantic, scenery, which has made it a renowned spot to the people of the two States which share its area between them; for two-thirds of the lake are within the State of California.

My business at Carson was to, as far as possible, replenish stores; but this proved no easy task, for prices were exorbitant, while my means were getting exhausted. Most necessaries were 400 or 500 per cent. in advance of Eastern market prices. However, I had the good fortune to meet an acquaintance who was willing to accept my bills, and supply our requirements at a moderate charge, and I provisioned the waggon for the distance to San Francisco, and made a start for the last stage of our journey.

South of Carson the country is covered with spurs of the Sierra Nevada of moderate height, and comparatively well wooded. In fact, there appears to be more forest land along 100 miles of the Western State boundary than in all the rest of the territory put together; though I must confess that I had but the vaguest notion of the position of the boundary line, and in the remainder of this journey was probably more than once over the border into California without knowing it.

Nevada is a sort of tailor-cut State, if I may be forgiven for saying so. The boundaries on three sides are as straight as arrows, but on the bottom or south side a great piece seems to have been sheared off in a diagonal cut, causing the territory to run off to a sharp point. The top part of this diagonal cut is mountainous; but towards the south it bisects the notorious Death Valley, where hundreds of travellers, to say nothing of their cattle, are said to have perished of thirst and exhaustion.

Keeping amid the mountain valleys wherever practicable, to benefit by the springs which are there to be met with, we proceeded south, it not being possible to take the heavy waggon over the Sierra near Carson. These valleys are generally narrow, but as we increased the distance south we often found the spaces between the hills occupied by dry lakes. The mud of these pools becomes as hard as bricks, and as their beds are level surfaces, they afford excellent roads for progress in the summer months. A very little rain or snow, however, suffices to turn them into tenacious quagmires, which neither man nor beast can pass over. They are usually exceedingly shallow, but when the winter rains and snows form mountain torrents, the water of which collects in their beds, some of them are of great area. The water, however, sinks away so fast that probably a week or two's dry weather is sufficient to disperse it all, partly by evaporation, partly by sinking into the ground. Except where the lake is wet for a considerable period during the year, there are no rushes or other herbage growing on its banks. Some of the lakes are permanent, varying in size with the season, but all those of this description which I tested were as salt as brine, or alkaline. None of these saline lakes have fish in them that I could discover; but most of them are tenanted by a kind of crustaceian, and other minute creatures of low organisation; and there is also an insignificant growth of a kind of vegetation found in no other situation.

We passed into the State of California through a valley some 20 miles south of Lake Mono, with the intention of going straight to 'Frisco (as San Francisco is locally called), but circumstances of a business character induced me to entirely alter this resolution, and I went to the south of the State of California in company with a surveying party.

This brings me to a point where it is convenient to close the narrative. As intimated at the commencement of the book, materials gathered in more than one journey are incorporated in these eleven chapters, but I trust that the reader will agree with me that it is better to present these materials in one consecutive narrative rather than in a number of isolated accounts: and after all, the story of these rambles may be considered as one journey with intervals between its various stages, and with some isolated experiences incorporated.

The Eleven States described here are among the youngest of the Union. Their Great Future is before them. The synonym of Eaglets which I have given them will, it is trusted, be obvious to all.

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